RESULT

OF

ASTRONOMICAL OBSERVATIONS

MADE AT

THE HONORABLE

THE EAST INDIA COMPANY'S OBSERVATORY

AT MADRAS

BY

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ASTRONOMER TO THE HONORABLE COMPANY.

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PREFACE.

Professor Airy says* "I think it may be fairly asserted that the value of unreduced Observations is very small and I do not hesitate to say that if an offer were made of a mass of regular meridional observations, unreduced, I should not think it worth acceptance:" upon such respectable authority I have thought it adviseable to bring before the public in the first instance the result of my observations with the details of the manner in which the reductions have been effected, and for the present to suppress altogether the rough observations depositing for the sake of reference manuscript copies with the Honorable Court of Directors.

It is proper I should state that the Instruments with which the Observatory is at present supplied (those with which the observations I am about to detail have been made) consist of a five feet Transit Instrument, a Mural Circle of four feet diameter and a five feet Telescope equatorially mounted recently constructed by Dollond on purpose for the Observatory. These Instruments were sent out to this Country in the summer of 1829, but by reason of the absence of the Astronomer they were allowed peacefully to repose in their packing cases till my arrival at Madras on the 15th September 1830; from this time to the end of the year I found abundance of employment in superintending the removal of the Instruments hitherto in use (a 20-inch Transit Instrument by Stancliff, and a 12-inch Altitude and Azimuth Instrument by Troughton) in building Piers for the reception of the new Instruments abovementioned and in instructing the native assistants in their duties.

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* Preface to Cambridge Observations.

The Observatory as it at present stands was built in the year 1792, having in this interval received alterations of a nature little interfering with its general character as an Observatory, in consequence of which on my taking charge, I had several objections to offer to the construction of the building, some of which were surmountable and were through the liberality of the Madras Government immediately attended to, others which could not so easily be overcome I have been compelled to allow to remain, of these I may mention the smallness of the aperture in the roof (18 inches) which prevents an alteration in the temperature on the outside of the building being communicated readily to the inside, and the unavoidable noise made by the observer at the one instrument disturbing the observer at the other; it has however been my particular care to diminish the effect of these inconveniencies, and I believe they little if at all interfere with the general accuracy of the results. The Observatory consists of but one apartment measuring 65 feet long, 20 feet broad, and 14 feet high; in the centre of, and perfectly insulated from the building, about one foot beneath the floor, is a solid mass of brickwork going down to a depth of 7 feet below the floor, 45 feet long and tapering (Pyramid fashion) from a base of 12 feet, to 6 feet width at top; after a careful examination I was convinced that no foundation I could construct would exceed in stability that of the pile in question which assumed more the nature of a single block of stone than of detached pieces held together by cement; accordingly it is upon the extreme ends of this pyramid that the Transit and Mural Circle Piers are built opposite to two apertures in the roof which had hitherto been used with the old instruments. On the eastern end of the Pyramid are built the Piers for the Transit Instrument; they consist of two pyramidal upright stone Piers resting upon a slab of the same 9 inches thick, $7\frac{1}{4}$ feet long and $2\frac{1}{2}$ feet wide to which they are cemented. See Plate I. These stones were cut under my own direction from blocks of an exceedingly hard quartzous stone brought from the Palaveram Hills known

by the name of blue stone. The Transit Clock is in like manner very steadily supported by a large block of blue stone.

In the centre of the building is a conical stone Pier tapering from a base of 4 feet diameter at the floor to 2 feet at 18 feet high or 4 feet above the roof of the Observatory serving to support a 12-inch Altitude and Azimuth Instrument by Troughton which is enclosed by a circular revolving dome.

The Mural Circle Pier which rests upon the western extremity of the Pyramid consists of $2\frac{1}{2}$ feet of new brick work surmounted by blocks of stone, *a, b, c, d,* which were cut and sent out from England on purpose. Plate II. The five feet Achromatic is exceedingly well and steadily mounted on a mahogany frame armed with brass, and being supplied with two graduated circles and a long axis moving on a graduated arc, it has occasionally been employed as an equatoreal in making rough observations out of the meridian in addition to its other uses in observing Occultations and Eclipses.

In using these Instruments I have adopted the plan of never touching any of the adjusting screws except in cases where the error was inconveniently large, but of computing the corrections due to each particular deviation; in the case of the Transit Instrument the inversion of the axis is rendered unnecessary by two marks one to the North the other to the South of the Observatory, the angular distance between which has been accurately found.

The points to which I have particularly directed my observation are:

1st. The determination of the places of a large Catalogue of Stars from a moderate number of observations, at first 1200 Stars only were

selected as an observing Catalogue, but lately this number has been increased to 2881 being the Catalogue selected by Mr. Bailly, published in the Second Volume of the Astronomical Society's Memoirs.

2ndly. To observations of the Planets at all times when they pass the Meridian between half past 5 o'clock in the morning and half past 12 at night, (the regular hours of observing).

3rdly. To observations of the Moon, Moon Culminating Stars and Occultations.

4thly. To observations of the Eclipses of Jupiter's Satellites.

To the observations of double Stars I have yet not been able to devote any time; although they are a class of Observation of a highly interesting nature, I have preferred for the present not to neglect other duties in their pursuit.

It now remains for me to state that the nature of my appointment, that provides in addition to the Superintendance of the H. C. Observatory at Madras I should be required to assist in the operations of the Great Trigonometrical Survey of India, so that I might calculate with certainty on being absent occasionally several months together from the Observatory; having this in view the plan proper to be followed appeared to be that of procuring assistants whom I could trust to make the observations during my absence; after but short experience with four native assistants I found that this could with great safety be done, accordingly the main mass of the observations here spoken of are made by the native assistants under my superintendance, and lately during my absence for six months in Bengal for the purpose above named the observations were altogether made by the native assistants; by this arrangement when at home I am enabled to attend more particularly to the computation of the observations which could not with any degree of safety be trusted to an assistant, accordingly

I consider myself, and myself only answerable for the accuracy of all the computations which may hereafter follow having in no case permitted computations made by the natives to go unexamined; that the observations and computations may prove accurate and useful, and tend in a degree however slight to advance the cause of Astronomy is my most constant and ardent wish.

Madras Observatory,
1st March 1832.

T. G. TAYLOR,
H. C. ASTRONOMER.

OF THE TRANSIT INSTRUMENT, &c.

THE Transit Instrument as I have already stated was constructed by Dollond, is 61 Inches focal length with a clear aperture of $3\frac{3}{4}$ Inches, this for Observations of the Sun and bright Stars has occasionally been reduced to $2\frac{1}{2}$ Inches, in either case the optical power of the Telescope has given me the greatest possible satisfaction, the focal distance of the eye-piece is Inch 0, 40. giving a power of 150: the eye-end is furnished with one horizontal and five vertical fixed wires, to which is added two wires moveable by a spring micrometer screw with which every day at Sun-rise and Sun-set the deviation of the central wire from the North and South marks has been registered; for the distance between the wires and value of the screw of the micrometer, see "Observations made with the Transit Instrument."

The axis is perforated at one end in the usual way for the admission of light from a lamp at night, which by means of a screw near the eye-piece can be moderated for the observation of faint Stars.

The *Y*'s are each composed of three distinct pieces, each piece being moveable round an axis peculiar to itself; the first piece or *Y* in which the pivots immediately rest is represented by Fig. 1. Plate II. together with its axis which is a screw with a capstan head working in the *Y* itself; when the instrument is first brought to bear upon the *Y*'s this piece is allowed to revolve easily and tightened only when the pivots have come to their bearing and the *Y*'s taken up a position convenient to their repose.

The first and second pieces put together are represented Plate II. Fig. 2, where *a a* represent two pins intended to act as a fulcrum to the counterpoises. A.A. Plate II. Fig. 2 and 3, are two pivots on which the whole is supported, by this contrivance the *Y*'s which are filed flat are brought to support the pivots throughout their whole length. Fig. 3, Plate II, represents the western side of the western *Y* which is adapted exclusively to azimuthal motion and is performed by means of two antagonizing screws B.B. causing the pieces above described to revolve round a centre C (see also Plate I.), placed 10 inches from the face of the *Y*'s themselves.

The eastern *Y* differs from the above only from being exclusively adapted to vertical motion; the pieces B.B. have consequently no place in the eastern *Y* and the frame *a, b, c, d,* which in this case slides in contact with the shoulders on either side is raised or lowered equally by two screws with graduated heads situated at D.D. working in the pieces immediately above, by this contrivance an adjustment for level is effected without altering the position in azimuth. Allusion is made above to counterpoises, it will consequently be expected that some description of them should be given: The counterpoises in question were constructed on a principle which is I believe new, and were to all appearance on a plan likely to ensure success, but after several days of vexation at not meeting with the accordance I could wish among the observations for collimation and level, &c. I was at length tempted to try the effect of removing the counterpoises, the result was that the observations agreed perfectly, and that I have not since used them. The Level for the Transit Instrument is one of great sensibility, in order to find the value of the divisions recourse was had to the Mural Circle on which it was placed and its indications registered corresponding to every 10 seconds through which the Circle was moved, the result was that the reading of the scale corresponded in every part with the reading of the Circle giving each division which measures 0,05 Inch = 0″,985. The Transit Clock is the common dead-beat escapement by Shelton with a gridiron Pendulum, it was reported to have gone well previously to my having the care of it, but the rate from day to day which hereafter follows will best bespeak its worth.

OF THE OBSERVATIONS MADE WITH THE TRANSIT INSTRUMENT.

IN the first instance it was necessary to know if the pivots of the Transit Instrument were alike in size and if not what the difference of their diameter and the effect it introduced in the Observations for level; for this purpose the following Observations were made and registered in the Level book.

OBJECT GLASS NORTH, CROSS LEVEL EAST, AND ILLUMINATING END OF THE AXIS.

1831	East.	West.	Diff. or illuminating end largest.
	"	"	"
April 3, Mean from 20 reversions.....	0,67 E.	1,25 W.	+ 0,96
April 9, Mean from 20 reversions.....	0,56 W.	0,81 W.	+ 0,125
April 11, Mean from 20 reversions.....	1,11 W.	2,61 W.	+ 0,79
April 14, Mean from 20 reversions.....	1,31 W.	2,20 W.	+ 0,445

Taking the mean we have 0″,58 for the apparent excess of the Illuminating or perforated pivot above the other pivot. The angle of the Y's of the transit as well as that of the level is exactly 90°; now if r, r', represent the radii of the illuminating and unilluminating pivots we have

$$\left.\begin{array}{l} 2\,r \text{ cosect. } \left(\frac{90}{2}\right) = \\ 2\,r' \text{ cosect. } \left(\frac{90}{2}\right) = \end{array}\right\} \text{ apparent height of the } \left\{\begin{array}{l} \text{illuminating pivot} \\ \text{unilluminating pivot,} \end{array}\right.$$

the difference $2{,}82\ (r - r') = 0''{,}58$, or the difference of the radii of the pivots $= 0''{,}206 = 0{,}000034$ Inches which produces an alteration in the height of the centre of the axis $= (r - r')$ cosect. $\left(\frac{90}{2}\right) = 0''{,}29$, accordingly this quantity must always be applied to the registered error of level as set down in the level book to obtain the true error.

The Intervals between the wires next came under examination, for this purpose the Equatorial Interval was computed from 70 Observations to be

from 1st wire to centre.....	+ 55″,036
2d	+ 27 ,477
4th.....	— 27 ,478
5th.....	— 54 ,868

These numbers hold good up to 15th March 1831, when the following note appears in the Transit book.

" At the commencement of the evening Observations a piece of stick about one inch long and a quarter of an inch wide, was found suspended on the wires, having by its weight broken the central one and bent the others, in consequence of which the observations were given up for the evening, and a new set of cobwebs introduced next morning."

From March 15th to 22d from 70 Observations the Equatorial Interval was

from 1st wire to centre.....	+ 55",166
2d	+ 27 ,526
4th.....	— 27 ,596
5th.....	— 55 ,080

On March 23d, 1831, the following note appears in the Transit book.

" On looking at the Sun a piece of wood about $\frac{1}{4}$ inch long appeared suspended on the 4th wire which with others it had broken, this piece of wood as well as that found on the 15th Instant, had evidently been recently picked, the ends shewing the fibres to have been twisted in the act of being broken from the tree by the miscreant hand who introduced it, and the bark on being removed exhibited the sap in a moist state; I am quite at a loss to account for the motives of the individual who can thus act! I introduced a new set of cobwebs to supply the place of those broken this morning."

From March 23d to April 21st, the Equatorial Interval from 156 Observations was found to be

from 1st wire to centre.....	+ 54",929
2d	+ 27 ,451
4th.....	— 27 ,501
5th.....	— 55 ,081

April 21st, 1831, the following note appears in the Transit book.

" On looking through the Telescope for the Observation of the Sun the five vertical and horizontal lines were found broken; I replaced them with cobwebs."

NOTE. I have great reason to believe that an Invalid Sepoy to whom the keys of the Observatory were intrusted during the absence of the Assistants, is the person who introduced the pieces of stick abovementioned into the Instrument; he was (as I afterwards found out) occasionally intoxicated and was in consequence discharged.

For the Observations of April 21st from 27 Observations the following Equatorial Intervals have been computed :

from 1st wire to centre.....	+	55^{s},100
2d	+	27 ,747
4th.....	—	27 ,336
5th.....	—	54 ,667

On the 22d April 1831, the following note appears in the Transit book.

" The central wire appears to have been badly secured yesterday, so that on looking into the Telescope this morning one end had disengaged itself from the varnish ; it was removed and another put in : the 4th wire was also secured with fresh varnish."

From April 22d to May 2d, 1831, the Equatorial Interval from 148 Observations was found to be

from 1st wire to centre.....	+	54^{s},669
2d	+	27 ,364
4th.....	—	27 ,597
5th.....	—	55 ,045

On the 2d May 1831, the following note appears in the Transit book.

" The central wire appeared split into two parts at one end ; I removed all the wires and put in another fresh set."

From 2d May to 7th May 1831, the Equatorial Interval from 70 Observations was found to be

from 1st wire to centre.....	+	54^{s},635
2d	+	27 ,642
4th.....	—	27 ,781
5th.....	—	54 ,798

May 7th 1831, the following note appears in the Transit book.

" Found the fourth wire broken ! In consequence of the ill success attending cobweb lines and the difficulty of procuring them, I have now introduced silk lines from unspun silk ; their appearance is much more uniform than the best cobwebs and they moreover are not acted upon as cobwebs are by the drying properties of the air."

From May 10th to July 25th, the Equatorial Interval from 100 Observations was found to be

OBSERVATIONS *of the time occupied by the* POLE STAR *to pass from the central wire to*

1831		R. D. 1 60	R. D. 1 20	R. D. 0 80	R. D. 0 40	R. D. 0 40	R. D. 0 80	R. D. 1 20	R. D. 1 60
		East of the Central Wire.				West of the Central Wire.			
		′ ″		′ ″			′ ″		
February	23	2 11,0	.....	1 10,0	.....	.....	1 7,0	.....	.....
June	10	.....	.....	1 5,5	.....	.....	1 9,5	.....	2 11,5
	15	2 10,5	.....	1 4,5	.....	.....	1 6,0	.....	2 13,0
	15	2 12,0	.....	1 6,0	.....	.....	1 4,0	.....	2 10,5
	19	2 11,8	.....	1 6,0	.....	.....	1 3,2	.....	2 9,7
	28	2 12,0	1 40,5	1 7,0	0 33,5	0 29,5	1 3,5	1 37,5	2 11,0
	28	2 10,5	1 38,0	1 6,0	0 34,0	0 31,5	1 4,0	1 37,0	2 9,5
	29	2 13,5	.....	1 9,5	0 33,0	.....	1 2,5	.....	2 8,5
	29	2 12,5	1 40,0	1 6,5	0 33,0	0 33,5	1 5,0	1 38,0	2 9,5
July	1	.....	.....	.....	.....	.....	1 7,0	.....	.....
	5	2 13,5	1 40,0	1 7,0	0 34,0	0 33,0	1 5,5	1 38,5	2 10,5
	5	2 19,5	1 36,0	1 4,0	0 31,0	0 33,5	1 7,5	1 40,5	2 14,0
Mean..		2 11,68	1 38,90	1 6,55	0 33,08	0 32,22	1 5,40	1 38,50	2 10,77

Now the spaces passed over by the Pole Star in any very small intervals of time from the meridian t, t', are equal to 15 sin. P.D. $\times t$ and 15 sin. P.D. $\times t'$ respectively, or very nearly so, and for $t - t'$ the time intermediate $=$ 15 sin. P.D. $\times (t - t')$ very nearly; taking the successive difference and using for P.D. 1° 35′ 48″ we get the following values for every successive 40 divisions of the micrometer screw, viz.

R. D.		R. D.		s.	
from 1 60	East to	1 20	East.....	32,78	corresponding to.....13,70
1 20	.....	0 80	.....	32,35	13,52
0 80	.....	0 40	.....	33,47	13,98
0 40	.....	Centre Wire	.....	33,08	13,83
Centre Wire..		0 40	West.....	32,22	13,46
0 40 West...		0 80	.....	33,18	13,88
0 80	.....	1 20	.....	33,10	13,75
1 20	.....	1 60	.....	32,27	13,57

R. D.

∴ 0 40 = 13″,711 or 1 Revolution = 34″,277

From the few Observations hitherto made of this nature the *exact valuc* of the micrometer screw must still be considered as undetermined, but the near agreement of the results seem to justify for the present the assumption that the threads of the screw are very nearly equidistant, and that each revolution does not greatly differ from the mean found above which has consequently been employed in the reductions.

ERROR OF LEVEL.

THE error of Level of the Transit Axis has been determined alone by the Spirit Level from Observations made at intervals of two or three days; the plan I have adopted, is taking the mean of three readings; one with the Y's of the level situated at the eastern extremity of the pivots, the next at the middle, and lastly when removed to the western extremity of the pivots; the mean of these three readings is employed for "Cross Level East," the same is repeated on inverting the level when the Cross Level is West; after this the Level is again inverted or the Cross Level is again placed on the eastern Y and the three readings again repeated; if this third reading does not differ more than $0''{,}5$ from the first result the mean between it and the first is employed with the second reading to obtain the error of level; but if a difference exceeding this quantity is found (which I need hardly remark does sometimes occur from accidental and unavoidable violence in reversing the level) the readings are repeated again and again until the desired agreement is obtained; the value of the divisions of the level were found previously to its being used by a comparison of the readings of the Mural Circle on which it was placed, with the indications of the level due to intervals of $10'$ through which the circle was moved, from this it appeared that 30,45 divisions of the level are equivalent to $30''$ of space, or each division which measures $\frac{1}{20}$ of an inch $= 0''{,}985$*: having mislaid the paper in which the details of the observations for this purpose were registered I have thought it advisable to re-examine the level in the manner above mentioned; from the mean of several readings the following results are obtained.

1832, April 12th.

Reading of the Level. North End. D.	Reading of the Level. South End. D.	Mean. D.	Mural Circle. A ° ′ ″	Mural Circle. B ″	Mean. ″	Resulting Value of 1 division. ″
+ 33,6	+ 30,0	+ 31,80	166 42 58,7	1,7	0,20	— 0,986
26,6	22,6	24,60	43 6,0	8,6	7,30	— 0,909
17,5	14,1	15,80	13,4	17,2	15,30	— 0,960
+ 4,6	+ 2,0	+ 3,30	25,6	29,0	27,30	— 0,976
— 7,6	— 10,4	— 9,00	37,6	41,0	39,30	— 1,000
— 18,6	— 21,0	— 19,80	48,5	51,7	50,10	

Mean = 0,967

* In the reductions of the Observations each division of the level has been assumed equal to one second.

1831	D.	H.	Illuminated End.		Error from Level.
					"
February	18	1	West		5,18 W.
	19	1	East		3,73 —
	20	1	....		4,38 —
	21	1	....		4,74 —
	22	1	....		5,02 —
	23	1	....		4,68 —
	24	1	....		4,37 —
	25	1	....		4,22 —
	28	1	....		4,13 —
March	3	1	....		3,85 —
	4	1	....		3,04 —
	5	1	....		2,66 —
	6	1	....		2,61 —
	7	1	....		2,76 —
	12	1	....		3,09 —
	15	1	....		3,71 —
	16	1	....		3,66 —
	18	1	....		3,65 —
	20	1	....		2,22 —
	23	1	....		1,81 —
	25	1	....		1,80 —
	28	6	....	*	0,43 E.
	29	6	....	*	0,65 —
	31	1	....		0,25 W.
April	1	1	....		0,31 —
	2	1	....		0,18 —
	3	6	....	*	0,13 —
	4	1	....		0,43 —
	6	1	....		0,41 —
	7	1	....		0,50 —
	9	6	....	*	0,41 —
	11	6	....	*	0,15 —
	14	6	....	*	2,25 —
	16	1	....		1,73 —
	18	1	....		0,62 —
	20	1	....		0,60 —
	25	1	....		0,18 —
	27	1	....		0,72 —
	29	1	....		0,08 —
May	1	1	....		0,30 —
	3	1	....		0,05 —
	5	1	....		1,65 —
	7	1	....		1,21 —
	11	1	....		0,76 —
	13	1	....		0,13 E.
	15	1	....		0,29 W.
	18	1	....		0,52 E.
	21	1	....		0,32 —
	23	1	....		0,12 W.
	25	1	....		0,12 —
	27	1	....		0,17 E.
	29	1	....		0,47 —
	31	1	....		0,50 —

1831	D.	H.	Illuminated End.	Error from Level.
				"
June	2	1	East	1,23 E.
	4	1	....	0,51 W.
	6	1	....	1,82 E.
	8	1	....	0,15 W.
	11	1	....	1,33 E.
	13	1	....	2,19 —
	15	1	....	1,79 —
	20	1	....	1,71 —
	22	1	....	3,64 —
	24	1	....	3,54 —
	27	1	....	4,02 —
	29	1	....	3,27 —
July	1	1	....	3,45 —
	3	1	....	3,62 —
	5	1	....	4,21 —
	7	1	....	3,55 —
	9	1	....	4,72 —
	13	1	....	4,69 —
	15	1	....	5,32 —
	17	1	....	5,97 —
	19	1	....	6,67 —
	21	1	....	5,51 —
	23	1	....	5,96 —
	25	1	....	6,26 —
	27	1	....	5,25 —
	29	1	....	5,29 —
	31	1	....	5,07 —
August	2	1	....	5,75 —
	4	1	....	6,27 —
	6	1	....	6,16 —
	8	1	....	6,07 —
	10	1	....	6,82 —
	12	1	....	6,12 —
	14	1	....	6,84 —
	16	1	....	4,55 —
	18	1	....	4,05 —
	20	1	....	4,53 —
	22	1	....	4,66 —
	24	1	....	4,75 —
	26	1	....	4,37 —
	29	1	....	4,89 —
	31	1	....	4,79 —
September	2	1	....	4,79 —
	4	1	....	5,83 —
	7	1	....	6,13 —
	9	1	....	6,14 —
	11	1	....	5,18 —
	13	1	....	4,94 —
	15	1	....	4,55 —
	17	1	....	4,53 —
	19	1	....	4,53 —
	21	1	....	4,81 —
	23	1	....	4,54 —

* On each of these days the Axis was inverted and brought back again ten times.

1831		Illuminated End.	Error from Level.	1831		Illuminated End.	Error from Level.
D.	H.		"	D.	H.	East	"
September 24	1	East	4,79 E.	November 11	1	....	3,36 E.
26	1	....	4,01 —	18	1	....	6,29 —
28	1	....	4,36 —	19	1	....	6,98 —
30	1	....	4,64 —	21	1	....	5,57 —
October 2	1	....	4,50 —	23	1	....	5,01 —
4	1	....	5,05 —	27	1	....	6,42 —
6	1	....	4,28 —	29	1	....	6,52 —
8	1	....	4,42 —	December 1	1	....	7,27 —
10	1	....	4,71 —	3	1	....	6,36 —
12	1	....	4,41 —	5	1	....	5,64 —
14	1	....	4,33 —	7	1	....	5,77 —
16	1	....	4,10 —	9	1	....	5,22 —
18	1	....	4,76 —	11	1	....	4,88 —
20	1	....	4,42 —	13	1	....	5,03 —
22	1	....	4,67 —	15	1	....	5,42 —
24	1	....	4,85 —	17	1	....	5,37 —
26	1	....	4,03 —	19	1	....	4,87 —
28	1	....	4,75 —	21	1	....	4,74 —
30	1	....	4,57 —	23	1	....	4,45 —
November 1	1	....	5,14 —	25	1	....	4,41 —
3	1	....	5,12 —	27	1	....	5,74 —
5	1	....	4,86 —	29	1	....	4,94 —
7	1	....	4,78 —	31	1	....	5,06 —
9	1	....	4,69 —				

N. B.—E. and W. represent that the East or West end of the Axis is too *high* as the case may be.

The above column "Error from Level" is the mean of six or more readings of the Spirit Level taken in the manner already described together with the correction for inequality in the diameter of the pivots found at page 3; thus from the Level book.

1831, February 18.—Illuminating End W. error by Level.....	5",47 W.
Illuminating Pivot too large.....	— 0 ,29
True error from Level.....	5 ,18 W.

These numbers can I imagine be depended upon to three or four tenth of a second for the day on which they are found; for the intermediate days I have generally employed corresponding intermediate values except in cases where the Axis has been inverted or the Instrument otherwise disturbed.

Now if e represent the true error of level as just found; every observed transit above the Pole / below the Pole requires a correction $\begin{matrix}+\\-\end{matrix}\left\{\frac{e \times \sin.\ \text{Altitude}}{15 \sin.\ \text{N.P.D.}}\right.$

where e is + for West error of level and — if the error of level is East.

ERROR OF COLLIMATION.

The position of the line of Collimation was determined at first in the ordinary way by inversion of the axis, measuring with the Micrometer the angular distance of the central wire from a distant mark to the North before and after inversion. In a similar manner it was determined with regard to a pair of cross wires fixed in the focus of a 20 Inch Transit Instrument situated in the southern aperture of the building, the wires being seen distinctly by looking through the object glass. By the original plan it was intended thus to obtain a mark at 180° distance from the North meridian mark whereby the position of the line of Collimation would have at once been obtained but a bad level and insecure Y's rendering the results doubtful the plan was abandoned: the following Observations are registered in the Collimation book 1831, February 18th.

	Illuminating End West.	Illuminating End East.	Error of Collimation.
	"	"	"
North Meridian Mark	30,30 W.	29,48 W.	0,41 W.
South Collimator	13,88 E.	13,71 E.	0,08 E.

On a repetition.

	"	"	"
North Meridian Mark	30,16 W.	31,36 W.	0,60 E.
South Collimator	16,11 E.	13,54 E.	1,29 E.

Hence it appears that the illuminating pivot being East the central wire describes a small circle 0″,40 to the West of the Meridian or great circle which the Telescope describes.

The want of agreement in these results added to the circumstance that an inversion of the axis is very seldom performed without an alteration resulting both in azimuth and level, rendered it desirable to do away with the necessity of inversion; for this purpose since the 6th March two meridian marks have been employed one situated about a mile to the North and the other about the same distance to the South of the Observatory. The angular distance between these was determined by frequent inversion of the axis from the following Observations.

		Illuminating End E.		Illuminating End W.		Collimation by	
	No. of Invers.	North mark	South mark	North mark	South mark	North mark	South mark
1831		"	"	"	"	"	"
March 28	5	28,59 W.	46,41 E.	21,77 W.	56,85 E.	3,41 W.	5,22 W.
29	5	28,23 —	45,22 —	18,34 —	56,79 —	4,94 —	5,78 —
April 11	3	26,35 —	44,90 —	19,84 —	52,58 —	3,26 —	3,84 —
„	3	26,62 —	44,73 —	18,85 —	52,98 —	3,88 —	4,12 —
11	4	25,66 —	45,65 —	18,10 —	53,61 —	3,78 —	3,98 —
„	3	25,19 —	44,78 —	18,22 —	54,07 —	3,48 —	4,65 —

∴ Now if the Instrument had not been subject to error of Collimation the following results would have been obtained.

		N. obsers.	Illuminating End E or W. North mark	South mark	Difference.
			"	"	"
March	28	5	25,18 W.	51,63 E.	26,45
	29	5	23,29 —	51,00 —	27,71
April	11	3	23,09 —	48,74 —	25,65
	„	3	22,74 —	48,85 —	26,11
	14	4	21,88 —	49,63 —	27,75
	„	3	21,71 —	49,43 —	27,72

Giving to each result its proper weight in proportion to the number of times the Instrument was inverted we have for the angular distance between the North and South marks (reckoning to the West about) $= 180° + 26'',97$ so that if N and S represent the observed deviation of the central wire from the North and South marks respectively, $\frac{N + S - 26'',97}{2}$ will represent the error of Collimation.

The observations for determining the error of Collimation which are registered in the Collimation book were made every day at sun-set and sun-rise; the marks being at these times seen distinctly and free from all appearance of tremor to which they are subject in the middle of the day. It is proper here to remark that the coincidence of the Micrometer and central wires was determined by bringing the former into contact with the latter on either side and moving the head of the screw until the + and — readings were equal, the accuracy of this adjustment was verified every second or third day, occasion however for readjustment has occurred but seldom, and then only to very small amount. The following results which are the mean between the Observations at Sun-set and Sun-rise have been reduced from the value of the Micrometer screw found at page 8.

1831		North mark.	South mark.	N. + S.	$\frac{N+S-26'',97}{2}$	Mean.	REMARKS.
		"	"	"	"	"	
June	4	+ 22,79	— 34,86	— 12,07	+ 7,45		
	5	22,79	35,13	12,16	7,41		
	6	22,83	35,31	12,48	7,25		
	7	23,31	35,31	12,00	7,48		
	8	23,35	34,45	11,10	7,93		
	9	24,41	34,72	10,31	8,33		
	10	24,61	34,21	9,60	8,68		
	11	25,09	34,52	9,43	8,77		
	12	24,58	34,10	9,52	8,72		
	13	24,78	35,55	10,77	8,10		
	14	24,34	35,89	11,55	7,71		
	15	24,85	35,51	10,66	8,16		
	16	25,37	35,65	10,28	8,35		
	17	25,02	35,48	10,46	8,25	+ 8,01	
	18	23,38	36,13	12,75	7,11		
	19	23,38	35,86	12,48	7,25		
	20	23,38	36,47	13,09	6,94		
	21	23,14	36,20	13,06	6,95		
	22	23,89	35,99	12,10	7,43		
	23	23,93	36,26	12,33	7,32		
	24	23,62	35,72	12,10	7,43		
	25	23,45	36,02	12,57	7,20		
	26	22,79	36,33	13,54	6,71		
	27	22,94	36,23	13,29	6,84		
	28	23,21	35,21	12,00	7,48		
	29	22,62	35,55	12,93	7,02		
	30	23,65	36,02	12,37	7,30		
July	1	24,06	35,21	11,15	7,91		
	2	24,51	35,96	11,45	7,76		
	3	22,62	34,52	11,90	7,53	+ 7,26	
	4	23,82	33,62	9,80	8,58		
	5	23,48	33,25	9,77	8,60		
	6	24,44	34,42	9,98	8,50		
	7	25,02	33,69	8,67	9,15		
	8	23,68	33,28	9,60	8,68		
	9	23,99	33,83	9,84	8,56		
	10	23,48	33,26	10,48	8,25		
	11	23,99	34,21	10,22	8,37		
	12	23,72	34,69	10,97	8,00		
	13	23,11	33,66	10,55	8,21		
	14	24,20	33,59	9,39	8,79		
	15	24,99	33,56	8,57	9,20		
	16	24,58	33,22	8,64	9,16		
	17	23,99	32,72	8,73	9,12		
	18	22,86	32,98	10,12	8,42		
	19	23,38	33,62	10,24	8,36		
	20	23,38					
	21	23,79	32,22	8,43	9,27		
	22	23,38	32,84	9,46	8,75		
	23	22,72	32,29	9,57	8,70		
	24	23,31	32,94	9,63	8,67		

1831	North mark.	South mark.	N. + S.	N + S − 26″,97	Mean.	Remarks.
	″	″	″	″	″	
July 25	+ 23,41	— 32,53	— 9,12	+ 8,92	+ 8,68	
26	25,37	32,14	6,77	+ 10,10		
27	25,85	31,95	6,10	10,43		
28	25,26	31,95	6,69	10,14		
29	25,95	31,16	5,21	10,88	+ 10,39	
30	26,81	30,23	3,42	+ 11,77		
31	27,94	30,19	2,70	12,13		
August 1	26,81	30,26	3,45	11,76		
2	27,49	30,26	2,77	12,10		
3	26,29	31,06	4,77	11,10		
4	26,81	30,16	3,35	11,81		
5	26,81	30,16	3,35	11,81		
6	26,64	30,51	3,87	11,55		
7	25,98	30,06	4,08	11,45		
8	26,08	29,07	2,99	11,99		
9	26,81	29,75	2,94	12,01		
10	26,26	29,41	3,15	11,91		
11	26,67					
12	26,12	30,30	4,18	11,40		
13	25,78	30,37	4,59	11,19		
14	25,92	31,06	5,14	10,91		
15	25,92				+ 11,66	Finding the errors of Azimuth and Collimation inconveniently large, I reduced them to more narrow limits.
16	28,66	43,02	14,36	+ 6,30		
17	29,48	42,78	13,30	6,83		
18	28,21	42,23	14,02	6,48		
19	28,32	42,53	14,21	6,38		
20	28,28	42,50	14,22	6,38		
21	27,93	42,19	14,26	6,36		
22	27,15	41,82	14,67	6,15		
23	27,45	41,92	14,47	6,25		
24	28,14	41,75	13,61	6,68	+ 6,42	The fourth wire found broken.
25	27,93	41,96	14,03	+ 6,47		
26	27,97	42,09	14,12	6,42		
27	27,63	42,38	14,75	6,11		
28	26,56	42,06	15,50	5,73		
29	25,74	42,16	16,42	5,28		
30	26,19	41,92	15,73	5,62		
31	26,42	42,40	15,98	5,50	+ 5,88	
September 1	26,49	43,67	17,18	+ 4,90		
2	26,08	43,70	17,62	4,67		
3	24,71	42,71	18,00	4,48		
4	25,02	43,33	18,31	4,33		
6	.....	.....	.....	.....	.....	An extraordinary difference between the readings on the morning of the 6th, is perfectly unaccountable unless a fall of 2¼ Inches of rain and a thunder storm during the night preceding had moved the foundation of the Piers, the Collimation screws were secure.

1831	North mark.	South mark.	N. + S.	$\frac{N+S-26'',97}{2}$	Mean.	REMARKS.
	"	"	"	"	"	
September 7	+ 28,45	.....	.....	.....	.....	I left Madras for Calcutta to assist in the operations of the Great Trigonometrical Survey leaving this class of observation to the care of T. Vytheanathum, the Head Assistant.
8	28,59	— 45,35	— 16,76	+ 5,10		
9	29,92	47,33	17,41	4,78		
10	30,16	46,55	16,39	5,29		
11	30,30	45,39	15,09	5,94	+ 4,94	
12	29,65	42,60	12,95	+ 7,01		
13	29,65	42,30	12,65	7,16		
14	29,58	41,97	12,39	7,29		
15	29,24	40,93	11,69	7,64	+ 7,27	
16	29,96	40,27	10,31	+ 8,33		
17	29,75	39,83	10,08	8,45		
18	29,79	39,63	9,84	8,57		
20	30,03	39,56	9,53	8,72	+ 8,52	
21	30,13	37,95	7,82	+ 9,57		
22	29,85	37,80	7,95	9,51		
23	30,16	38,15	7,99	9,49		
24	30,74	38,08	7,34	9,81		
25	30,23	38,39	8,16	9,41		
26	29,99	38,56	8,57	9,20		
27	30,92	38,73	7,81	9,58		
28	31,12	37,91	6,79	10,09		
29	30,26	38,56	8,30	9,33		
30	28,66	38,15	9,49	8,74		
October 1	30,26	37,36	7,10	9,93		
2	30,26	38,90	8,64	9,16		
3	30,37	36,68	6,31	10,33		
4	31,40	36,23	4,83	11,07		
5	30,16	36,43	6,27	10,35		
6	29,82	36,33	6,51	10,23		
7	29,65					
8	29,45	37,60	8,15	9,41		
9	29,35	38,12	8,77	9,10		
10	29,17	37,36	8,19	9,39	+ 9,67	
11	29,48					
12	29,34	40,82	11,48	+ 7,75		
13	29,48	39,69	10,21	8,38		
14	28,52	38,26	9,74	8,61		
15	28,69	38,08	9,39	8,79		
16	27,42	37,80	10,38	8,30		
17	27,90	39,22	11,32	7,82		
18	27,08	38,42	11,34	7,81		
21	28,14	38,15	10,01	8,48		
22	28,42	37,87	9,45	8,76		
23	28,11					
24	28,11	39,42	10,31	7,83		
25	28,28	39,35	11,07	7,95		

1831	North mark.	South mark.	N. + S.	$\frac{N+S-26'',97}{2}$	Mean.	REMARKS.
	"	"	"	"	"	
October 27	+ 27,08	— 38,60	— 11,52	+ 7,72		
28	27,22	38,66	11,44	7,76		
29	27,63	38,22	10,59	8,20		
30	27,86	37,19	9,33	8,82		
31	27,05	37,70	10,65	8,16		
November 1	26,98	36,85	9,87	8,55		
2	28,72	36,78	8,06	9,45	+ 8,28	
3	28,21	36,68	8,47	9,25		
4	28,52	38,87	10,35	8,31		
5	26,39	38,49	12,10	7,43		
6	28,01	38,42	10,41	8,28		
7	27,76					
8	26,64	37,84	15,20	7,88		
9	27,59	35,99	8,40	9,28		
10	27,11	36,06	8,95	9,01		
11	26,39	36,23	9,84	8,57		
12	26,71	37,29	10,58	8,20		
13	27,39	36,58	9,19	8,89		
14	26,95	37,91	10,96	8,01		
19	26,91					
20	25,23	36,02	10,79	8,09		
21	25,47	36,54	11,07	7,95		
22	26,05	36,58	10,53	8,22		
23	26,22	37,57	11,35	7,81		
26	24,75	35,65	10,90	8,03		
27	24,34	34,25	9,91	8,53		
29		33,08				
30		34,45				
December 1		33,93	.....	.....	+ 8,34	
2	25,05	38,56	13,51	+ 6,73		
3	24,58	38,63	14,05	6,46		
4	21,62	38,05	16,43	5,27		
5	21,73	37,43	15,70	5,63		
6		38,12				
7	21,46	38,83	17,37	4,80		
8	22,62	38,15	15,53	5,72		
9	22,38	38,80	16,42	5,28		
10	22,18	40,10	17,92	4,53	+ 5,55	
12	23,28	27,97	4,69			
13	24,02	27,97	3,95	11,51		
14	22,97	28,28	5,31	10,83		
15	23,46	28,89	5,43	10,77		
16	24,24	28,52	4,28	11,35		
17	23,48	27,42	3,94	11,51		
18	23,48	29,28	5,80	10,58		
19	23,41	29,24	5,83	10,57		
20	23,79	29,35	5,56	10,70		
21	23,04	29,92	6,88	10,05		
22	22,62	29,14	6,52	10,22	+ 10,81	
23	21,39	30,88	9,49	8,74		
24	21,28	31,36	10,08	8,45		

1831	North mark.	South mark.	N. + S.	$\frac{N+S-26'',97}{2}$	Mean.	REMARKS.
	"	"	"	"	"	
December 25	+ 21,62	— 30,30	— 8,68	+ 9,15		
26	23,18	29,00	5,82	10,08		
28	23,24					
29	21,52					
30	20,60	31,53	10,93	8,02		
31	19,88	30,85	10,97	8,00	+ 8,74	

In the reduction of the Observations the numbers in column *Mean* have been employed in conjunction with the numbers found at pages 6 and 7 for reducing the mean of the three central or five wires to the central wire; with these also have been employed the correction for Diurnal Aberration, the effect of which is that to see Stars upon the Meridian the Instrument should move in a small circle parallel to the Meridian and to the eastward of it by a quantity X cos. Lat. (X being the equatorial constant of diurnal aberration) in this latitude $= 0'',29$, thus for the first 17 days of the month of June.

Collimation of the central wire.....	$= + 8'',01$
Correction for 5 wires + 0",073.....	$= + 1,10$
Diurnal aberration.....	$= - 0,29$
Number employed.....	$+ 8,82$

The column "correction for Collimation" (see the observations) consequently contains the correction..... $\frac{+ 8'',82}{15 \cdot sin.\ N.P.D.}$ additive to observations above the Pole and subtractive for those below.

ON THE DEVIATION IN AZIMUTH.

The Deviation of the Transit Instrument from the Meridian has been found from the Observations of the two meridian marks already detailed at Pages 7 and 8 for finding the error of Collimation; the Azimuth of these marks was

determined from observations of the Polar Star at its consecutive passages over the central wire above and below the pole; as this correction is one of great importance my attention was directed most particularly to the making of the observations, it happens however unfortunately that the Polar Star is not visible in the day time once a month in this Latitude, and *when seen*, by reason of the excessive tremor under which Stars appear in the day time the observations cannot for nice purposes be depended upon; it happens moreover very unfortunately that at the time of the year when the Pole Star passes the meridian in the morning and evening when the necessary observations could be made, the prevalence of cloudy weather peculiar to the South West monsoon renders observations very scarce, so that from these united causes in the year 1831, I was able only to obtain five pair of observations of the nature required; these observations are as follows.

Observations of the North Polar Star.

1831		h.	m.	s.	Corrections for Level. s.	Collimation. s.	Clock Error. "	h.	m.	s.
February	18 S.P.	12	59	52,00	— 2,480	+ 1,661	— 33,85	12	59	17,33
	19 Above.	1	0	5,00	+ 2,280	— 1,661	— *19,21	0	59	46,41
June	15 S.P.	12	59	30,30	+ 0,850	— 18,670	— 7,17	12	59	5,31
	15 Above.	1	0	27,20	— 1,090	+ 18,670	— 7,59	1	0	37,19
	28 S.P.	12	59	49,59	+ 1,610	— 16,720	— 17,88	12	59	16,60
	28 Above.	1	0	48,22	— 2,050	+ 16,720	— 18,08	1	0	44,81
	29 S.P.	12	59	51,10	+ 1,430	— 16,720	— 18,35	12	59	17,46
	29 Above.	1	0	50,17	— 1,800	+ 16,720	— 18,56	1	0	46,53
July	5 S.P.	13	0	4,22	+ 1,880	— 20,270	— 26,14	12	59	19,69
	5 Above.	1	1	5,33	— 2,390	+ 20,270	— 26,48	1	0	56,73

If to the above be applied the error for Azimuth and the corrections for Aberration, Nutation and Precession, &c. we obtain the mean place of the Pole Star for January 1, 1831, as follows.

1831	h.	m.	s.	Correction for Azimuth.	Aberration, &c. "		
February	18.	12	59	17,33	+ 2,356 a	+ 13,09	= Mean A.R. Jan. 1, 1831.
	19.	0	59	46,41	— 2,326 a	+ 13,39	—— ——
June	15.	12	59	5,31	+ 2,345 a^{I}	— 5,24	—— ——
	15.	1	0	37,19	— 2,315 a^{I}	— 5,61	—— ——
	28.	12	59	16,60	+ 2,345 a^{II}	— 15,16	—— ——
	28.	1	0	44,80	— 2,315 a^{II}	— 15,54	—— ——
	29.	12	59	17,46	+ 2,345 a^{III}	— 15,94	—— ——
	29.	1	0	46,53	— 2,315 a^{III}	— 16,33	—— ——
July	5.	12	59	19,69	+ 2,345 a^{IIII}	— 20,41	—— ——
	5.	1	0	56,73	— 2,315 a^{IIII}	— 20,79	—— ——

* The Clock had stoped for about fifteen seconds from some unknown cause but the result here given is in no wise affected thereby.

In the above (where, a, a^{I} &c. are intended to represent the deviations of the Instrument from the Meridian expressed in seconds of *space)* subtracting the first line of each pair from the second we get the following.

		s.						"
February 18 and 19		29,38	=	4,682	a	or	a	= 6,275
June	15	91,51	=	4,660	a^{I}	——	a^{I}	= 19,637
	28	87,82	=	4,660	a^{II}	——	a^{II}	= 18,845
	29	88,68	=	4,660	a^{III}	——	a^{III}	= 19,030
July	5	96,66	=	4,660	a^{IIII}	——	a^{IIII}	= 20,742

Applying the above values a, a^{I}, &c. to the observed deviation of the central wire from the North and South marks we obtain their Azimuth from the Meridian as follows.

	Observed deviation of the central wire. from North mark.		South mark.		Deviation of central wire. from Meridian.	Azimuth of North mark.		South mark.		N — S.
	"		"		"	"		"		"
Feb. 18 and 19	30,32	E.	57,29	W.	6,275	36,595	W.	63,565	E.	100,160
June 15	16,84	—	43,52	—	19,637	36,477	—	63,157	—	99,634
28	15,95	—	42,47	—	18,845	34,795	—	61,315	—	96,110
29	15,36	—	42,81	—	19,030	34,390	—	61,840	—	96,230
July 5	14,81	—	41,92	—	20,742	35,552	—	62,662	—	98,214
					Mean =	35,562	W.	62,508	E.	98,070

These results at first sight appear very unsatisfactory, but on further inspection it will be found that errors of four or five tenths of a second of space in the values of the error of collimation will altogether reconcile the disagreement: that the error does arrive from this cause, or rather that it is not chargeable on the observations will be made clear on taking the mean of the results above and below the pole, where an agreement is obtained equal to any thing which the nature of the observation will permit.

Mean A.R. January 1, 1831.

h.	m.	s.		s.		h.	m.	s.
0	59	45,11	....	+ 0,015 a	=	0	59	45,20
		45,82	....	+ 0,015 a^{I}				46,11
		45,35	....	+ 0,015 a^{II}				45,63
		45,86	....	+ 0,015 a^{III}				46,15
		45,10	....	+ 0,015 a^{IIII}				45,41

The Mean of these $0h.\ 59m.\ 45{,}70s.$ differs nearly two seconds from the Greenwich determination notwithstanding which from the care bestowed upon

the observations and computations (which were made by myself) I have no sort of doubt of its being an accurate determination and in employing it in preference to any other in the computations which now follow, I do it from a consciousness of its being accurate on the one hand, and on the other hand from a determination which I have formed of calling for assistance upon other observations for the sake of reducing my own as seldom as possible, and then only when their use cannot be dispensed with. But to return to our subject let a and a^1 represent the observed transits of any two Stars corrected for error of Level and Collimation, A, A^1, their true apparent Right Ascensions which in the present instance are those given in the Greenwich approximate Catalogue of 720 Stars (with the above exception,) reduced by the numbers given in the Astronomical Society's Catalogue; putting c and c^1 for the terms $\frac{\text{cos. Altitude}}{\text{sin. N.P.D.}}$ and x for the error in Azimuth we have $a^1 - a + (c^1 - c)\, x = A^1 - A$ (supposing the clock keeps sidereal time, otherwise its rate must be allowed for) whence x in seconds of space $= \frac{(A^1 - A) - (a^1 - a)}{15\,(c^1 - c)}$ pursuing this course with the Polar Star (which affords in this latitude a large coefficient) and Stars situated near to the Zenith, we obtain values of x which applied to the corresponding deviations of the central wire from the North and South marks give their Azimuth as follows.

Determination of the Azimuth of the North and South Meridian marks from a comparison of the observed transit of the Polar Star below the Pole with

		Names of Stars.			Deviation of the central wire from		Azimuth of	
				$''$	North mark.	South mark.	North mark.	South mark.
1831								
February	19	*α Andromedæ	$x =$	6,10				
		α Arietis	$=$	6,35				
	20	α Cancri	$=$	4,39				
	27	β Virginis	$=$	6,80				
		α Aquilæ	$=$	5,61				
	28	Procyon	$=$	4,08				
March	2	ζ Hydræ	$=$	7,11				
		δ Virginis	$=$	7,15				
	9	α Hydræ	$=$	9,94	25,76	52,74	35,70	62,68
		α Lyræ	$=$	9,90	.....	.....	35,66	62,64
	13	π Virginis	$=$	9,76	24,84	51,80	34,60	61,56
	17	Regulus	$=$	10,57	24,59	51,57	35,16	62,14
		α Lyræ	$=$	10,41	.....	.....	35,00	61,98

* Polaris observed above the Pole.

Comparison of the observed transit of Polaris with

		Names of Stars.			Deviation of the central wire from		Azimuth of	
				"	North mark.	South mark.	North mark. "	South mark. "
1831								
March	18	γ Leonis	$x =$	10,61	23,41	50,39	34,02	61,00
		α Lyræ	$=$	10,48	.....	.....	33,89	60,87
	19	α Lyræ	$=$	11,86	22,28	49,25	34,14	61,11
	21	ε Leonis	$=$	10,47	23,39	50,35	33,86	60,82
		ζ Aquilæ	$=$	10,24	.....	.....	33,63	60,59
	22	α Hydræ	$=$	12,91	22,85	49,82	35,76	62,73
		α Aquilæ	$=$	12,75	.....	.....	35,60	62,57
	23	χ Leonis	$=$	13,85	22,73	49,71	36,58	63,56
		α Aquilæ	$=$	13,67	.....	.....	36,40	63,38
	25	σ Leonis	$=$	13,09	22,53	49,50	35,62	62,59
		δ Aquilæ	$=$	12,98	.....	.....	35,51	62,48
	26	γ Aquilæ	$=$	13,46	23,05	50,03	36,51	63,49
	27	γ Virginis	$=$	10,88	24,19	51,17	35,07	62,05
		γ Aquilæ	$=$	10,74	24,19	51,17	34,93	61,91
	28	σ Leonis	$=$	14,24	24,25	51,21	38,49	65,46
		ζ Aquilæ	$=$	13,87	.....	.....	38,12	65,09
	29	α Virginis	$=$	14,17	23,19	50,16	37,36	64,33
	30	σ Leonis	$=$	13,94	23,23	.....	37,17	64,14
		λ Virginis	$=$	13,40	.....	.....	36,63	63,60
	31	ε Pegasi	$=$	13,07				
April	3	ε Leonis	$=$	15,70	23,24	50,21	38,94	65,91
		α Aquilæ	$=$	15,06	.....	.....	38,30	65,27
	4	ε Leonis	$=$	15,22	22,58	49,54	37,80	64,76
	5	β Leonis	$=$	14,14	27,21	49,19	36,35	63,33
		γ Aquilæ	$=$	14,07	.....	.....	36,28	63,26
	6	o Leonis Minoris	$=$	14,50	21,61	48,57	36,11	63,07
		γ Aquilæ	$=$	14,37	.....	.....	35,98	62,94
	11	o Virginis	$=$	11,75	22,04	49,00	33,79	60,75
		γ Aquilæ	$=$	11,32	.....	.....	33,36	60,32
	12	β Corvi	$=$	12,98	22,53	49,51	35,51	62,49
		γ Aquilæ	$=$	13,12	.....	.....	35,65	62,63
	14	β Virginis	$=$	13,88	22,02	48,98	35,90	62,86
	15	γ Aquilæ	$=$	14,18	20,04	47,00	34,22	61,18
	16	a^2 Capricorni	$=$	13,05	19,98	46,78	32,87	59,83
	17	γ Aquilæ	$=$	12,91	20,68	47,65	33,59	60,56
	18	α Aquilæ	$=$	12,58	20,39	47,36	32,97	59,94
	19	γ Aquilæ	$=$	12,70	20,96	47,93	33,66	60,63
	20	γ Aquilæ	$=$	14,07	20,17	47,15	34,24	61,22
	21	54 Leonis	$=$	16,22	19,68	46,64	35,90	62,86
	22	γ Comæ Berenicis	$=$	14,20	20,32	47,30	34,52	61,50
	23	γ Comæ Berenicis	$=$	12,60	20,94	47,90	33,54	60,50
	24	π Virginis	$=$	12,11	21,06	48,02	33,17	60,13
	25	m Virginis	$=$	10,50	21,52	48,48	32,02	58,98
	26	π Virginis	$=$	14,23	21,80	48,79	36,03	63,02
		μ Virginis	$=$	14,36	.....	.....	36,16	63,15
	27	δ Virginis	$=$	14,92	22,35	49,32	37,27	64,24
		α Virginis	$=$	14,86	.....	.....	37,21	64,18
	28	α Virginis	$=$	14,87	21,82	48,79	36,69	63,66
May	1	ε Virginis	$=$	13,94	22,90	49,87	36,84	63,81
		α Virginis	$=$	14,02	.....	.....	36,92	63,89
	4	β Corvi	$=$	16,06	22,62	49,58	38,68	65,64
		α Virginis	$=$	16,02	.....	.....	38,64	
	5	ε Corvi	$=$	13,35	21,96	48,92	35,31	62,27
		α Virginis	$=$	13,39	.....	.....	35,35	62,31

Comparison of the observed transit of Polaris with

1831		Names of Stars.			Deviation of the central wire from North mark.	Deviation of the central wire from South mark.	Azimuth of North mark.	Azimuth of South mark.
				"			"	"
May	6	α	Comœ Ber	$x = 15{,}02$	20,40	47,37	35,42	62,39
	13	γ	Comœ Bor	$= 16{,}56$	19,49	46,46	36,05	63,02
		α	Virginis	$= 16{,}52$	.....	.....	36,01	62,98
	14	δ	Virginis	$= 17{,}00$	19,15	46,12	36,15	63,12
		α	Virginis	$= 17{,}04$	.....	.....	36,19	63,16
	15	61	Virginis	$= 16{,}03$	19,65	46,62	35,68	62,65
	16	η	Corvi	$= 15{,}65$	20,72	47,69	36,37	63,34
		ζ	Virginis	$= 15{,}55$	.....	.....	36,27	63,24
	18	γ	Corvi	$= 14{,}56$	20,33	47,29	34,89	61,85
	20	γ	Comœ Bor	$= 14{,}26$	20,23	47,20	34,49	61,46
	21	δ	Virginis	$= 14{,}42$	19,57	46,54	33,99	60,96
	22	m	Virginis	$= 15{,}07$	20,03	47,00	35,10	62,07
	23	λ	Virginis	$= 14{,}97$	20,14	47,11	35,11	62,08
	24	γ	Comœ Bor	$= 15{,}97$	19,12	46,09	35,09	62,06
		ν	Bootis	$= 15{,}87$	.....	.....	34,99	61,96
	25	γ	Corvi	$= 16{,}05$	20,34	47,31	36,39	63,36
		ι	Virginis	$= 16{,}28$	.....	.....	36,62	63,59
	26	α	Canum. Ven	$= 15{,}86$	17,50	44,47	33,36	60,33
		ι	Virginis	$= 15{,}86$	.....	.....	33,36	60,33
	28	γ	Virginis	$= 15{,}38$	16,59	43,56	31,97	58,94
		η	Bootis	$= 15{,}18$	.....	.....	31,77	58,94
June	3	ν	Leonis	$= 19{,}59$	15,14	42,10	34,73	61,69
	4	κ	Virginis	$= 19{,}42$	15,34	42,31	34,76	61,73
	5	η	Virginis	$= 19{,}89$	15,38	42,54	35,27	92,43
		δ	Libræ	$= 20{,}20$	.....	.....	35,58	62,74
	11	ζ	Bootis	$= 18{,}48$	16,32	43,29	34,80	61,77
	15	α	Comœ Ber	$= 19{,}39$	16,69	43,67	36,08	63,06
		ζ	Bootis	$= 19{,}09$	.....	.....	35,78	62,76
		*α	Cassiopeæ	$= 19{,}60$	.....	.....	36,29	63,27
	19	α	Cassiopeæ	$= 19{,}20$	16,13	43,11	35,33	62,31
	28	m	Virginis	$= 18{,}77$	15,73	42,69	34,50	61,46
		*γ	Pegasi	$= 18{,}64$	.....	.....	34,37	61,33
		*α	Arietis	$= 19{,}40$	.....	.....	35,13	62,09
	29	ι	Virginis	$= 18{,}97$	15,60	42,57	34,57	61,54
		*γ	Pegasi	$= 18{,}81$	.....	.....	34,41	61,38
		*α	Arietis	$= 19{,}11$	.....	.....	34,71	61,68
July	1	*α	Arietis	$= 19{,}99$	16,15	43,12	36,14	63,12
	5	α^2	Libræ	$= 19{,}99$	14,88	41,85	34,87	61,84
		*ϵ	Ophiuchi	$= 20{,}25$	.....	.....	35,13	62,10
September	21	*	Procyon	$= 12{,}47$	20,56	47,52	33,03	59,99
	22	*o	Sayitt	$= 14{,}44$	20,34	47,31	34,78	61,75
	29	*ζ	Cassiopeæ	$= 14{,}67$	2039,	47,89	35,60	62,56
	30	*γ	Cassiopeæ	$= 14{,}68$	19,92	46,89	34,60	61,57
October	2	*ζ	Cassiopeæ	$= 14{,}68$	21,10	48,96	35,78	62,74
	4	*μ	Andromedæ	$= 12{,}76$	20,33	47,30	33,09	60,06
	6	*ζ	Andromedæ	$= 14{,}74$	19,59	46,56	34,33	61,30
	14	*ϵ	Piscium	$= 15{,}21$	19,91	46,87	35,12	62,08
	20	*ι	Ceti	$= 14{,}28$	19,46	46,43	33,74	60,71
	22	*	Piscium	$= 14{,}51$	19,66	46,63	34,17	61,14
	23	*ϵ	Piscium	$= 14{,}53$	19,81	46,78	34,34	61,31
	24	*ζ	Andromedæ	$= 14{,}25$	20,28	47,25	34,53	61,50
	25	*ϵ	Piscium	$= 14{,}36$	20,33	47,30	34,69	61,66
	31	*ζ	Andromedæ	$= 16{,}15$	18,89	45,86	35,04	62,01
November	1	*τ	Andromedæ	$= 15{,}22$	18,43	45,40	33,65	50,62

Comparison of the observed transit of Polaris with

		Names of Stars.			Deviation of the central wire from		Azimuth of	
					North mark.	South mark.	North mark.	South mark.
				"			"	"
1831								
November	2	*μ Andromedæ	$x =$	14,21	19,27	46,23	33,48	60,43
	4	*β Ceti	$=$	15,06	20,21	47,18	35,27	62,21
	5	*β Ceti	$=$	15,27	18,96	45,92	34,23	61,19
	6	*β Ceti	$=$	15,27	19,73	46,70	35,00	61,97
	8	*β Ceti	$=$	15,30	18,76	45,72	34,06	61,02
	19	*ε Andromedæ	$=$	15,19	18,86	45,83	34,05	61,02
	21	*δ Andromedæ	$=$	18,61	17,52	44,49	36,13	63,10
	27	*δ Andromedæ	$=$	19,42	15,81	42,78	35,23	62,20
December	3	*ν Andromedæ	$=$	20,39	18,12	45,09	38,51	65,48
	5	*ν Andromodæ	$=$	16,71	16,10	43,06	32,81	59,77
	8	*μ Piscium	$=$	22,07	16,90	43,87	38,97	65,94
	12	*ν Andromedæ	$=$	24,53	12,47	38,78	37,00	63,31
	14	*ε Ceti	$=$	25,46	12,14	39,11	37,60	64,57
	16	*α Piscium	$=$	25,74	12,89	39,67	38,63	65,61
	21	*ζ Arietis	$=$	25,83	12,99	39,97	38,82	65,80
	24	*τ Ceti	$=$	21,23	12,83	39,81	34,06	61,04

Taking the mean of 128 Observations we get

the Azimuth of the North mark $= 35'',34$ West of the Meridian

South mark $= 62'',31$ East of the Meridian

differing only two tenths of a second from the numbers found at page 22. Now if N and S represent the deviation of the central wire from the North and South marks already given (page 14 et seq.) and C the error of Collimation we have

$$x = 35'',34 \pm C - N.$$

$$x = 62'',31 \mp C - S.$$

taking half the sum of these

$$x = \frac{97'',65 - N - S}{2}$$

employing this with the values of N and S above named we get the

Deviation of the Transit Instrument in Azimuth.

	N — S.	$\frac{97'',65 - N - S.}{2}$	Remarks.		N — S.	$\frac{97'',65 - N - S.}{2}$	Remarks.
1831	"	"		1831	"	"	
March 6	77,40	10,12		March 10	78,43	9,61	
7	77,49	10,08		11	75,30	11,17	
8	80,38	8,63		12	76,43	10,61	
9	78,50	9,57		13	76,64	10,50	

	N — S.	$\frac{97'',65 - N - S}{2}$	Remarks.
1831	"	"	
March 14	75,80	10,92	
15	75,31	11,17	= 10",23
16	74,82	11,41	New lines.
17	76,16	10,75	
18	73,80	11,92	
19	71,53	13,06	
20	74,38	12,63	
21	73,74	11,96	
22	72,67	12,49	= 12",03
23	72,44	12,60	New lines.
24	74,15	11,75	
25	72,03	12,81	
26	73,08	12,28	
27	75,36	11,15	= 12",12 Instrument inverted.
28	75,46	11,09	Instrument inverted.
29	73,35	12,15	
30	.....	.....	= 11",62
April 2	72,29	12,68	
3	73,45	12,10	
4	72,12	12,76	
5	71,40	13,12	
6	70,18	13,73	
7	71,40	13,12	= 12",92
8	70,86	13,38	
9	70,81	13,42	
10	71,26	13,20	
11	71,04	13,30	
12	72,04	12,80	
13	69,71	13,97	= 13",34 Instrument inverted.
14	71,00	13,32	
15	67,04	15,31	
16	66,60	15,52	
17	68,33	14,66	
18	67,75	14,95	
19	68,89	14,38	
20	67,32	15,16	= 14",76 wires broken
21	66,32	15,66	Wires broken.
22	67,62	15,03	
23	68,84	14,41	
24	69,08	14,28	
25	70,00	13,82	
26	70,59	13,53	
27	71,67	12,99	
28	70,61	13,52	
30	68,93	14,36	= 13",99 wires broken

	N — S.	$\frac{97'',65 - N - S}{2}$	Remarks.
1831	"	"	
May 3	72,05	12,66	
4	72,20	12,72	
5	70,88	13,38	
6	67,77	14,94	= 13",42 wires broken
10	68,21	14,72	
11	67,85	14,90	
12	68,87	14,39	
13	65,95	15,85	
14	65,27	16,19	
16	68,41	14,62	
17	67,73	14,96	
18	67,62	15,01	
19	69,00	14,32	= 15",00
26	61,97	17,84	
27	60,33	18,66	
28	60,15	18,75	
29	61,11	18,27	
30	60,91	18,37	
31	60,27	18,69	= 18",55
June 1	59,19	19,23	
2	58,22	19,71	
3	57,24	20,20	
4	57,65	20,00	
5	58,10	19,78	
6	58,14	19,75	
7	58,62	19,51	
8	57,80	19,93	
9	59,13	19,26	
10	58,82	19,42	
11	59,61	19,02	
12	58,68	19,49	= 19",60
13	60,33	18,66	
14	60,23	18,71	
15	60,36	18,65	
16	61,02	18,31	
17	60,50	18,57	
18	59,51	19,07	
19	59,24	19,20	
20	59,85	18,90	
21	59,34	19,15	
22	59,88	18,89	
23	60,19	18,73	= 18",80
24	59,34	19,15	
25	59,47	19,09	
26	59,12	19,26	
27	59,17	19,24	
28	58,42	19,61	
29	58,17	19,74	

	N — S.	$\frac{97'',65 - N - S.}{2}$	Remarks.
1831	"	"	
June 30	59,67	18,99	
July 1	59,27	19,19	
2	60,47	18,59	
3	57,14	20,25	
4	57,44	20,10	
5	56,73	20,46	
6	58,86	19,35	
7	58,71	19,47	
8	56,96	20,33	
9	57,82	19,91	
10	56,74	20,45	
11	58,20	19,74	
12	58,41	19,62	
13	56,77	20,44	
14	57,79	19,93	
15	58,55	19,55	= 19″,66
16	57,80	19,92	
17	56,71	20,47	
18	55,84	20,90	
19	57,00	20,32	
20	56,30	20,67	
21	56,01	20,82	
22	56,22	20,72	
23	55,01	21,32	
24	56,25	20,70	
25	55,94	20,85	
26	57,51	20,07	
27	57,80	19,92	
28	57,21	20,22	
29	57,11	20,27	
30	57,04	20,31	
31	58,13	19,76	
Aug. 1	57,07	20,29	
2	57,75	19,95	
3	57,35	20,15	
4	56,97	20,34	
5	56,97	20,34	
6	57,15	20,25	
7	56,04	20,80	
8	55,15	21,25	
9	56,56	20,54	
10	55,67	20,99	
11	56,52	20,56	
12	56,42	20,61	
13	56,15	20,75	
14	56,98	20,33	
15	56,98	20,33	= 20″,47
16	71,68	12,98	The readings were reduced.
17	72,26	12,69	
18	70,44	13,60	
19	70,85	13,40	
20	70,78	13,44	

	N — S.	$\frac{97'',65 - N - S.}{2}$	Remarks.
1831	"	"	
Aug. 21	70,12	13,76	
22	68,97	14,34	
23	69,37	14,14	
24	69,89	13,88	= 13″,58
25	69,89	13,88	4th wire broken.
26	70,06	13,80	
27	70,01	13,82	
28	68,62	14,52	
29	67,90	14,87	
30	68,11	14,77	
31	68,82	14,41	
Sept. 1	70,16	13,75	
2	69,78	13,93	
3	67,42	15,11	
4	68,35	14,65	= 14″,32
7	73,80	11,92	This alteration unaccountable.
8	73,94	11,85	
9	77,25	10,20	
10	76,71	10,47	
11	75,69	10,98	= 11″,09
12	72,25	12,70	
13	71,95	12,85	
14	71,55	13,05	= 12″,87
15	70,17	13,74	
16	70,23	13,71	
17	69,58	14,03	
18	69,42	14,11	
20	69,59	14,03	= 13″,92
21	68,08	14,78	
22	67,65	15,00	
23	68,31	14,67	
24	68,82	14,41	
25	68,62	14,51	
26	68,55	14,55	
27	69,65	14,00	
28	69,03	14,31	
29	68,82	14,41	
30	66,81	15,42	
Oct. 1	67,62	15,01	
2	69,16	14,25	
3	67,05	15,30	
4	67,63	15,01	
5	66,59	15,53	
6	66,15	15,75	
7	66,61	15,52	
8	67,05	15,30	
9	67,47	15,09	
10	66,53	15,56	= 14″,92

	N — S.	$\frac{97'',65 - N - S.}{2}$	Remarks.
1831	″	″	
Oct. 11	—	—	
12	70,16	13,75	
13	69,17	14,24	
14	66,78	15,43	
15	66,77	15,44	
16	65,22	16,21	
17	67,12	15,26	
18	65,50	16,07	
21	66,29	15,68	
22	66,29	15,68	
23	67,75	14,95	
24	67,53	15,06	
25	67,63	15,01	
27	65,68	15,98	
28	65,88	15,89	
29	65,85	15,90	= 15″,37
30	65,05	16,30	
31	64,75	16,45	
Nov. 1	63,83	16,91	
2	65,50	16,08	
3	64,89	16,38	
4	67,39	15,13	
5	64,88	16,38	
6	66,43	15,61	
7	65,89	15,89	
8	64,48	16,58	
9	63,58	17,03	
10	63,17	17,24	
11	62,62	17,51	
12	64,00	16,82	
13	63,97	16,84	
14	64,86	16,40	= 16″,47

	N — S.	$\frac{97'',65 - N - S.}{2}$	Remarks.
1831	″	″	
Nov. 20	61,25	18,20	
21	62,01	17,82	
22	62,63	17,51	
23	63,79	16,93	
26	60,40	18,62	
27	58,59	19,53	
Dec. 2	63,61	17,02	
3	63,21	17,22	
4	59,67	18,99	
5	59,16	19,25	
6	59,72	18,96	
7	60,29	18,68	
8	60,77	18,44	
9	61,18	18,23	
10	62,28	17,68	= 18″,21
12	51,25	23,20	
13	51,99	22,83	
14	51,25	23,20	
15	52,35	22,65	
16	52,76	22,45	
17	50,90	23,37	
18	52,76	22,45	
19	52,65	22,50	
20	53,14	22,25	
21	52,96	22,35	
22	51,76	22,95	
23	52,27	22,69	
24	52,64	22,50	
25	51,92	22,86	
26	52,18	22,73	
27	—	—	
30	52,13	22,76	
31	50,73	23,46	= 22″,78

The column "correction for Azimuth" is computed from the mean values of x set down above in the column of Remarks, where cor. in Azim. $= \frac{\text{cos. Altitude } x}{15\ sin.\ \text{N.P.D.}}$ which (the Deviation being to the *West* of the North) is subtractive for observations between the Zenith and North Pole and additive in all other cases.

ON THE REDUCTIONS EMPLOYED.

The reduction of eight or ten thousand Observations which the books of this Observatory presented for the year 1831, was an undertaking attended

with considerable labor and anxiety, especially as the Native Assistants being very liable to blunder, I could expect from them but little assistance, at least I have thought it proper and found it necessary either to examine carefully every computation made by the Native Assistants or to procure from them a duplicate computation; with this in view I very gladly availed myself of those excellent tables by Mr. Baily, printed in the II Vol. of the Royal Astronomical Society's Memoirs, without which valuable assistance I could not possibly have undertaken the reduction of my observations; the formulæ from which these tables were constructed are.

$A = -18'',677\ cos.\ \odot$

$B = -20'',360\ sin.\ \odot$

$C = t - ,025\ sin.\ 2\odot - 0'',344\ sin.\ \Omega + 0'',004\ sin.\ 2\Omega$

$D = -0'',545\ cos.\ 2\odot - 9'',250\ cos.\ \Omega + 0'',090\ cos.\ 2\Omega$

$a = +\cos.\alpha \sin.\delta$ $\qquad a' = +\tan\omega \cos.\delta - \sin.\alpha \sin.\delta$

$b = +\sin.\alpha \sin.\delta$ $\qquad b' = +\cos.\alpha \sin.\delta$

$c = +46'',021 + 20'',043\ \sin.\alpha \tan\delta$ $\qquad c' = +20'',043\ \cos.\alpha$

$d = +\cos.\alpha \tan\delta$ $\qquad d' = -\sin.\alpha$

The total corrections for aberration precession and nutation.

$$In.\ A.R. = a\,A + b\,B + c\,C + d\,D$$
$$In.\ N.P.D. = a'\,A + b'\,B + c'\,C + d\,D$$

In computing the quantities A and B which comprehend the correction for aberration, I have substituted for 20″,36 the more recently determined value 20″,50 from the Greenwich Observations so that we have $A = -18'',802\ cos.\ \odot$ and $B = -20'',500\ sin.\ \odot$ in all other respects I have strictly adhered to the tables except in one or two cases where errors had been committed.* The computations are made for 8*h*. 30*m*. mean time of each day (being about the middle of the times of observing) except for Polaris and δ Ursæ Minoris for which the computations have been adapted to the time of their passing the Meridian.

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* *Errors in the Ast. Soc. Tables.*

No. 767 for $b' = -7{,}6504$ read $b' = +7{,}6504$

795 — $a' = 0{,}0000$ —— $a' = -6{,}5682$

810 — $d = -7{,}6067$ —— $d = +7{,}6067$

1167 — $b = +9{,}8912$ —— $b = +8{,}8912$

ON THE CLOCK ERRORS AND CLOCK RATES.

As I have before stated, the greater part of the observations have been made by the Native Assistants during my residence at Madras, and were altogether made by them during my absence for five months on other duties in Bengal so that it will be proper to put the reader in possession of some of the early rough observations made by these Assistants in order that a confidence proportional to their merit may be established, accordingly the observations on two consecutive days as here annexed are given as much by way of specimen for this purpose as to furnish an example of the manner in which the Clock Error and Rates have been determined.

It will be proper to premise that the Assistants had been accustomed to observing transits with the Mural Circle for one month previously to the Transit Instrument being erected, during this time their progress being equal to what I could have expected I did not hesitate to commence observing with their assistance.

The names of the observers whose initials are attached to their respective observations are M for Mootoosawmy Moodeliar; A for Anuntacharyer Braminy and T for my own observations.

Observed Transits of the Sun Planets and fixed Stars over the Meridian of the Madras Observatory, extracted from the Transit book.

	I	II	III	IV	V	Mean.	Corrections for Level +	Azimuth	Coll. +	Transit over the Meridian.	Names.	Observed by
1831	*s.*	*s.*	*m.* *s.*	*s.*	*s.*	*m.* *s.*	*s.*	*s.*	*s.*	*h.* *m.* *s.*		
March 18	23,7	51,2	49 18,9	46,7	13,9	49 18,88	,235	+ 197	,225	23 49 19,54	⊙ 2 L.	M.
		59,0	3 38,9	17,7	57,6	3 38,51	,296	— 624	,321	5 3 38,51	*a* Aurigæ	
	52,8	20,3	22 47,9	15,0	42,9	22 47,78	,238	+ 188	,225	5 22 48,43	*δ* Orionis	
L 3″,65 W.	44,1	11,9	31 38,7	6,7	34,3	31 39,14	,234	+ 208	,225	5 31 39,81	*ζ* Orionis	
	50,8	20,0	36 50,1	20,1	49,6	36 50,12	,213	+ 504	,244	5 36 51,08	*γ* Leporis	
A 12″,03 W.	16,2	54,6	46 33,7	12,8	51,9	46 33,84	,296	— 600	,318	5 46 33,85	*β* Aurigæ	
C 3″,66 E.		24,0	50 57,8	31,4	5,0	50 57,65	,198	+ 732	,276	5 50 58,86	*γ* Columbæ	
	24,0	52,8	57 21,0	49,9	17,8	57 21,10	,252	+ 048	,228	5 57 21,63	*υ* Orionis	
	59,9	34,6	1 9,0	43,6	17,2	1 8,86	,198	+ 773	,283	6 1 10,11	*θ* Columbæ	
	7,0	34,8	6 2,4	29,9	57,6	6 2,34	,230	+ 266	,226	6 6 3,06	*α* Monocer	
	49,0	22,9	9 57,5	30,0	4,2	9 56,72	,198	+ 728	,275	6 9 57,92	*κ* Columbæ	

	Names.	App. A.R. + Clock Er.	Aber-ration, &c.	Mean A.R. Jan. 1, 1831 + Clock Er.	Greenwich Mean A.R. Jan. 1, 1831.	Difference or Clock Error.	Error computed from Mean.	Mean Places Jan. 1, 1831.	Mean Errors of Clock.
1831		*h. m. s.*	*s.*	*h. m. s.*	*h. m. s.*	*s.*	*s.*	*h. m. s.*	
March 18	⊙ 2 L.....	23 49 19,54					— 34,65		
M.	α Aurigæ.....	5 3 38,51	+ 0,05	5 3 38,56	5 4 13,02	— 34,46	34,32	5 4 12,88	
	δ Orionis.....	5 22 48,43	+ 0,04	5 22 48,47	5 23 22,63	34,16	34,30	5 23 22,77	
Daily Rate	ζ Orionis.....	5 31 39,81	— 0,01	5 31 39,80	5 32 14,08	34,28	34,29	5 32 14,09	M. 6*h.* 17*m.*
of Clock.	γ Leporis.....	5 36 51,08	— 0,00	5 36 51,08	5 37 25,17	34,09	34,29	5 37 25,37	
M. + 1″,33	β Aurigæ.....	5 46 33,85	— 0,26	5 46 33,59	5 47 8,01	34,42	34,28	5 47 7,87	17 — 34″,25
A. + 1″,59	γ Columbæ.....	5 50 58,86	— 0,08	5 50 58,78	5 51 32,74	33,96	34,27	5 51 33,05	
	ν Orionis.....	5 57 21,63	— 0,16	5 57 21,47	5 57 55,43	33,96	34,27	5 57 55,74	A. 9*h.* 34*m.*
T. + 1″,46	θ Columbæ.....	6 1 10,11	— 0,14	6 1 9,97			34,27	6 1 44,24	7 — 34″,12
Mean.	α Monocerotis..	6 6 3,06	— 0,19	6 6 2,87	6 6 36,87	34,00	34,26	6 6 37,13	
= + 1″,46	κ Columbæ.....	6 9 57,92	— 0,26	6 9 57,68	6 10 32,61	34,93	34,26	6 10 31,94	
	ζ Canis Major..	6 13 15,78	— 0,27	6 13 15,51	6 13 49,71	34,20	34,25	6 13 49,76	T. 19*h.* 13*m.*
	ν Geminorum...	6 18 21,97	— 0,29	6 18 21,68	6 18 55,61	33,93	34,25	6 18 55,93	8 — 33″,83
	δ Urs Min.....	6 26 7,68	+ 3,22	6 26 10,90	6 26 49,37	* 38,47	34,24	6 26 45,14	
	55 Aurigæ.....	6 30 12,96	— 0,40	6 30 12,56			34,24	6 30 46,80	
	α Canis Maj....	6 36 7,87	— 0,41	6 36 7,88	6 37 41,91	34,03	34,23	6 36 42,11	
	χ Arg in pup...	6 41 0,86	— 0,50	6 41 0,36			34,23	6 41 34,59	
	Canis Maj....	6 44 10,08	— 0,51	6 44 9,57			34,23	6 44 43,80	
	ζ Geminor.....	6 53 31,35	— 0,45	6 53 30,90	6 54 4,86	33,96	34,22	6 54 5,12	
	63 Aurigæ.....	6 59 27,63	— 0,59	6 59 27,04			34,21	6 59 27,25	
	64 Aurigæ.....	7 5 42,88	— 0,57	7 5 42,31			34,20	7 6 16,51	
	60 Geminor....	7 14 39,80	— 0,56	7 14 39,24	7 15 13,30	34,06	34,19	7 15 13,43	
	α Geminor.....	7 23 14,22	— 0,61	7 23 13,61	7 23 48,33	34,72	34,18	7 23 47,79	
	α Canis Min....	7 29 53,09	— 0,62	7 29 52,47	7 30 27,20	34,73	34,17	7 30 26,64	
	β Geminor.....	7 34 24,26	— 0,65	7 34 23,61	7 34 57,91	34,30	34,17	7 34 57,78	
	c Arg in pup....	7 38 40,54	— 0,96	7 38 39,58			34,17	7 39 13,75	
A.	γ^1 Argus.....	8 3 44,82	— 1,35	8 3 43,47			34,21	8 3 43,68	
	γ^2 Argus.....	8 3 47,02	— 1,35	8 3 45,67			34,21	8 3 45,88	
	q Arg in pup...	8 11 40,35	— 1,19	8 11 40,16			34,20	8 12 14,36	
	η Piscis Vol....	8 23 0,52	— 3,61	8 22 56,91			34,19	8 23 31,10	
	δ Hydræ.....	8 28 9,23	— 0,89	8 28 8,34	8 28 42,29	33,95	34,18	8 28 42,52	
	β Pixid Naut...	8 33 56,35	— 1,29	8 33 55,06			34,18	8 34 39,24	
	α Arg in Vel....	8 39 45,58	— 1,61	8 39 43,97			34,17	8 40 18,14	
	ζ Hydræ.....	8 45 54,50	— 0,95	8 45 53,55	8 46 27,34	33,79	34,16	8 46 27,71	
	Lyncis.....	8 55 12,33	— 1,03	8 55 11,30			34,15	8 55 45,45	
	c Arg in Vel....	8 57 47,28	— 1,78	8 57 45,50			34,15	8 58 19,65	
	λ Argus.....	9 1 14,75	— 1,68	9 1 13,07			34,15	9 1 47,22	
	μ Arg in Car...	9 5 59,54	— 2,45	9 5 57,09			34,14	9 6 31,23	
	ι Argus.....	9 12 2,71	— 2,53	9 12 0,18			34,14	9 12 34,32	
	α Hydræ.....	9 18 43,22	— 1,15	9 18 42,07	9 19 17,02	34,95	34,13	9 19 16,20	
	U^1 Hydræ.....	9 42 48,37	— 1,31	9 42 47,06			34,11	9 43 21,17	
	π Leonis.....	9 50 43,71	— 1,14	9 50 42,57	9 51 16,72	34,15	34,10	9 51 16,67	
	♄ Centrum.....	9 55 28,62					34,10		
	Regulus.....	9 58 49,38	— 1,23	9 58 48,15	9 59 21,93	33,78	34,09	9 59 22,24	
	γ Leonis.....	10 10 5,59	— 1,16	10 10 4,43	10 10 38,66	34,23	34,08	10 10 38,51	
	γ Arg in Vel...	10 14 33,74	— 1,98	10 14 31,76			34,08	10 15 5,84	
	ρ Leonis.....	10 23 21,69	— 1,23	10 23 20,46	10 23 54,44	33,98	34,07	10 23 54,53	
	Polaris SP....	12 58 50,25	+25,18	12 59 15,43	12 59 45,70	* 30,27	33,92	12 59 49,35	
T.	α Lyræ.....	18 30 39,08	+ 0,18	18 30 39,26	18 31 13,11	33,85	33,87	18 31 13,13	
	β Lyræ.....	18 43 16,57	+ 0,22	18 43 16,79	18 43 50,58	33,79	33,86	18 43 50,65	
	ζ Aquilæ.....	18 57 4,44	+ 0,26	18 57 4,70	18 57 38,61	33,91	33,84	18 57 38,54	
	δ Draconis.....	19 11 55,06	+ 0,80	19 11 55,86	19 12 29,69	33,83	33,83	19 12 29,69	
	δ Aquilæ.....	19 16 24,54	+ 0,36	19 16 24,90	19 16 58,58	33,68	33,83	19 16 58,73	
	γ Aquilæ.....	19 37 39,31	+ 0,45	19 37 39,76	19 38 13,55	33,79	33,80	19 38 13,56	
	α Aquilæ.....	19 41 57,98	+ 0,48	19 41 58,46	19 42 32,29	33,83	33,80	19 42 32,26	
	β Aquilæ.....	19 46 26,35	+ 0,50	19 46 26,85	19 47 0,79	33,94	33,79	19 47 0,64	

	Names.	App. A.R. + Clock Er.	Aber-ration, &c.	Mean A.R. Jan. 1, 1831 + Clock Er.	Greenwich Mean A.R. Jan. 1, 1831.	Difference or Clock Error.	Error computed from Mean.	Mean Places Jan. 1, 1831.	Mean Errors of Clock.
1831		*h. m. s.*	*s.*	*h. m. s.*	*h. m. s.*	*s.*	*s.*	*h. m. s.*	
March 19	⊙ 1 L.....	23 51 54,55					— 33,68		
M.	⊙ 2 L.....								
	♀	1 10 58,99					33,64		
	α Aurigæ.....	5 3 39,64	+ 0,07	5 3 39,71	5 4 13,02	33,31	33,51	5 4 13,22	
	β Tauri.....	5 15 3,66	+ 0,04	5 15 3,70	5 15 36,92	33,22	33,51	5 15 37,21	
	ε Orionis..	5 27 4,82	+ 0,03	5 27 4,85	5 27 38,47	33,62	33,50	5 27 38,35	M. 6*h.* 9*m.*
	κ Orionis.... ..	5 39 10,88	— 0,02	5 39 10,86	5 39 44,56	33,70	33,50	5 39 44,36	12 = 33″,48
M. + 0″,77	ν Orionis..	5 57 22,24	— 0,15	5 57 22,09	5 57 55,43	33,34	33,49	5 57 55,58	
A. + 0″,76	θ Columbæ	6 1 47,57	— 0,11	6 1 47,46			33,48	6 2 20,94	A. 9*h.* 30*m.*
	α Monocerotis..	6 6 3,82	— 0,17	6 6 3,65	6 6 36,87	33,22	33,48	6 6 37,13	3 = 33″,36
T. + 0″,73	β Canis Maj....	6 14 42,27	— 0,23	6 14 42,04	6 15 15,57	33,53	33,48	6 15 15,52	
	α Argus..... ..	6 19 38,28	— 0,34	6 19 37,94			33,48	6 20 11,42	T. 19*h.* 8*m.*
Mean.	f Monocer.....	6 23 11,25	— 0,30	6 23 10,95			33,47	6 23 44,42	6 = 33,″10
= + 0″,76	δ Urs Min. SP..	6 26 11,98	+ 2,87	6 26 14,85	6 26 49,37	* 34,52	33,47	6 26 48,32	
	55 Aurigæ.....	6 30 13,32	— 0,35	6 30 12,97			33,47	6 30 46,44	
	α Canis Maj....	6 37 8,65	— 0,37	6 37 8,28	6 37 41,91	33,63	33,46	6 37 41,74	
	χ^2 Canis Maj....	6 42 58,64	— 0,47	6 42 58,17	6 43 31,89	33,72	33,46	6 43 31,63	
	ι Canis Maj....	6 48 3,24	— 0,44	6 48 2,80	6 48 36,09	33,29	33,46	6 48 36,26	
	ζ Geminor.....	6 53 31,84	— 0,43	6 53 31,41	6 54 4,86	33,45	33,45	6 54 4,86	
	63 Aurigæ.....	6 59 28,25	— 0,59	6 59 27,66			33,45	7 0 1,11	
	ε^1 Canis Maj....	7 6 48,93	— 0,60	7 6 48,33	7 7 22,07	33,74	33,45	7 7 21,78	
A.	b^1 Arg in Car...	8 52 19,38	— 2,31	8 52 17,07			33,38	8 52 50,45	
	r Lyncis.....	9 10 12,42	— 1,25	9 10 11,17	9 10 44,43	33,26	33,37	9 10 44,54	
	κ Leonis.....	9 14 15,64	— 1,04	9 14 14,60			33,37	9 14 47,97	
	λ Leonis.....	9 21 31,83	— 1,04	9 21 30,79	9 22 4,01	33,22	33,36	9 22 4,15	
	N Arg in Car...	9 25 34,71	— 2,46	9 25 32,25			33,36	9 26 5,61	
	κ Hydræ.....	9 31 40,82	— 1,16	9 31 39,66			33,36	9 32 13,02	
	υ Argus.....	9 42 22,54	— 3,33	9 42 19,21			33,36	9 42 52,57	
	φ Argus.....	9 50 25,79	— 2,47	9 50 23,32			33,35	9 50 56,67	
	♄ Centrum.....	9 55 15,28					33,35		
	Regulus.....	9 58 49,54	— 1,22	9 58 48,32	9 59 21,93	33,61	33,34	9 59 21,66	
	q Arg in Vel....	10 7 8,91	— 1,85	10 7 7,06			33,34	10 7 40,40	
	γ Arg in Vel....	10 14 33,54	— 1,98	10 14 31,56			33,34	10 15 4,90	
	Polaris SP....	12 58 45,30	+25,39	12 59 10,69	12 59 45,70	* 35,01	33,25	12 59 43,94	
T.	α Lyræ.....	18 30 39,75	+ 0,15	18 30 39,90	18 31 13,11	33,21	33,12	18 31 13,02	
	β Lyræ.....	18 43 17,51	+ 0,19	18 43 17,70	18 43 50,58	32,88	33,12	18 43 50,82	
	ζ Aquilæ.....	18 57 5,33	+ 0,23	18 57 5,56	18 57 38,61	33,05	33,11	18 57 38,67	
	δ Draconis.....	19 11 55,84	+ 0,74	19 11 56,58	19 12 29,69	33,11	33,10	19 12 29,68	
	α Aquilæ.....	19 41 58,58	+ 0,46	19 41 59,04	19 42 32,29	33,25	33,08	19 42 32,12	
	β Aquilæ.....	19 46 27,19	+ 0,48	19 46 27,67	19 47 0,79	33,12	33,08	19 47 0,75	

In the above the first column contains the day of the month, the Initials of the Observer's name placed opposite to his observations, and the daily Rate of the Clock as determined from the mean error set down in column 10 found by each separate Observer, compared with that found by the same on the preceding day, thus by the observer M.

	d.	*h.*	*m.*		*s.*
1831, March	18	6	17	from 17 obs. Clock too slow.....	34,25
	19	6	9	—— 12	33,48
Difference...		23	52	.....	+ 0,77

* These are omitted in taking the means.

Hence by M. the Clock's Rate in 24*h*. = + 0″,774 from 17 obs. and 12 obs.
similarly. — A. ..... = + 0″,762 —— 7 — and 3 obs.
— T. ..... = + 0″,733 —— 8 — and 6 obs.
By the method of Minimum Squares the Rate = + 0″,706

The second and third columns are copied from the Transit book.

The fourth column contains the corrections for aberration nutation and precession see Pages 29 and 30, which applied to the preceeding gives column five.

Column six is derived from the Greenwich approximate Catalogue for 1830 brought on by the annual precessions thereunto annexed. This Catalogue is called an *approximate* one as far as the Right Ascensions are concerned in consequence of the number of observations being limited generally to 5, but from Instruments such as those at Greenwich and from observers possessing the advantage of long continued practice this number of observations should furnish results as accurate as could be desired; this is I believe for the most part the case except in a few cases where errors have crept in which I have corrected;* at any rate by assuming the whole Catalogue of 720 Stars I may venture to hope to make up in part by quantity what this Catalogue may be deficient in quality.

The seventh column contains the difference between the two preceeding, or the error of the Clock; this column is divided by lines, and the means taken so as to leave each observer's result separate, which is placed in column ten; with this and the mean rate, the next or column eight is computed, which being applied to column five gives the mean place of each Star for January 1st 1831, column nine. The advantage and necessity of thus rendering each observer's results independent has been acknowledged and met with considerable attention by Professer Schumacher and other continental Astronomers who have bestowed considerable pains to ascertain the constant of time which one observer differs from another in estimating the time when a Star arrives at the wires of a Transit Instrument: That this quantity *does remain constant,* is a fact however not confirmed by my own experience, on the contrary I generally find that unpractised observers note the time in *excess* from three to seven tenths of a second when compared with those long accustomed to this species of observation.

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* *Errors in Greenwich Approximate Catalogue.*

		h. *m.* *s.*		*h.* *m.* *s.*
δ Eridani.....	A.R. for	3 35 5,52	read	3 35 6,52
κ Cancri.....	—— —	8 58 31,85	——	8 58 32,85
o Sagittarii....	—— —	18 54 30,59	——	18 54 29,59
o Aquarii.....	—— —	21 54 31,77	——	21 54 31,17

The A.R. of τ^1 τ^2 h^1 and h^3 Aquarii being doubtful have been omitted.

On taking the difference between Columns 7 and 8 Pages 34 and 35, we get the error of a single Observation as follows.

By observer M.			By observer A.			By observer T.		
March.....18th		19th	March.....18th		19th	March....18th		19th
s.		s.	s.		s.	s.		s.
0,14	—	0,20	0,23	—	0,11	0,02	—	0,09
,14	—	,29	,37	—	,14	,07	—	,24
,01	—	,12	,82	—	,27	,07	—	,06
,20	—	,20	,05			,00	—	,01
,14	—	,15	,31			,15	—	,17
,31	—	,26	,15			,01	—	,04
,31	—	,05	,09			,03		
,26	—	,17				,15		
,67	—	,26						
,05	—	,17						
,32	—	,00						
,20	—	,29						
,26								
,13								
,54								
,56								
,13								
Mean error of one Observation....		0,225		—	0,254		—	0,079

The above mean errors cannot be considered large for observers with only two months experience, but finding towards the middle of the month of May that these numbers did not become as small as I had anticipated, I was induced to exchange these two observers for two others who had practiced observing transits with the Mural Circle during the three previous Months, and from whom I had reasons for expecting an increased degree of accuracy and attention. Accordingly the transit Observations to the end of the year are made by these observers as is explained in the transit book by the initials of their names, where R stands for Ragavacharyer Braminy and S for Soontharum Moodeliar; the rough observations made by these observers on two consecutive days which now follow are given in order to shew the progress they had made when their Observations were first recorded, and for the purpose of exhibiting the degree of accuracy which may be expected from the results.

Errors in Greenwich Approximate Catalogue.

		h.	m.					
b Sagittarii....	A.R.	17	50	from Madras Observation			appears	1″ in error.
w Virginis.....	——	11	52	——	——	——	——	0″,8 ——
κ Cephei.....	——	20	14	——	——	——	——	3″ ——

	I	II	III	IV	V	Mean.	Corrections for Level —	Azimuth	Coll. +	Transit over the Meridian.	Names.	Observed by
1831	s.	s.	m. s.	s.	s.	m. s.	s.	s.	s.	h. m. s.		
May 31	2,2	31,9	28 1,9	31,8	0,9	29 9,89	,035	— ,202	,549	4 29 10,21	⊙ 1 L.	S.
	18,8	48,3	30 17,9	47,7	17,5					4	⊙ 2 L.	
	38,9	14,2	9 49,9	24,8	0,5	9 49,66	,039	— ,701	,659	11 9 49,58	p Ursæ Majoris	
	16,6	47,7	27 19,5	50,6	22,0	27 19,28	,036	— ,382	,580	11 27 19,44	Ursæ Minoris	
	55,5	25,5	31 55,5	24,9	54,9	31 55,26	,035	— ,213	,552	11 31 55,56	92 Leonis	
	12,0	11,1	17 9,9	9,0	7,7	17 9,94	,018	+ 2,570	1,090	12 17 13,59	a^2 Crucis	
	10,2	39,5	38 8,8	37,9	5,9	38 8,46	,035	— ,101	,535	12 38 8,86	n Comæ Berenicis	
	12,6	41,7	39 10,8	39,6	8,5	39 10,64	,035	— ,118	,537	13 39 11,02	τ Bootis	R.
	6,7	1,0	51 55,3	49,0	43,4	51 55,08	,020	+ 2,317	1,007	13 51 58,39	β Centauri	
	54,7	22,5	3 50,4	18,1	46,0	3 50,34	,031	+ ,480	,516	14 3 51,31	κ Virginis	
	35,0	14,9	9 55,0	35,2	15,3	9 55,08	,041	— 1,015	,748	14 9 54,77	λ Bootis	
L= 0″,50 E.	54,2	39,5	19 24,6	9,8	55,0	19 24,62	,042	— 1,298	,844	14 19 24,12	θ Bootis	
A=19″,60 W.	26,0	58,1	24 30,2	2,3	34,1	24 30,14	,037	— ,449	,597	14 24 30,25	ρ Bootis	
C= 6″,56 E.	47,0	15,6	32 44,2	13,0	41,7	32 44,30	,035	— ,092	,535	14 32 44,71	π Bootis	
	34,7	4,0	43 33,1	2,4	31,5	43 33,14	,035	— ,150	,542	14 43 33,50	ξ Bootis	
	55,8	32,2	48 8,9	45,2	21,9	48 8,80	,026	+ 1,341	,684	14 48 10,80	κ Centauri	
	19,8	56,2	55 32,6	9,0	45,5	55 32,62	,040	— ,773	,684	14 55 32,49	β Bootis	
	33,8	25,7	4 18,0	9,8	2,0	4 17,86	,020	+ 2,218	,968	15 4 21,03	β Cricini	
	54,6	29,4	18 4,0	39,0	14,2	18 4,24	,038	— ,644	,649	15 18 4,21	μ Bootis	
	12,0	43,2	28 14,9	46,1	17,5	28 14,74	,028	+ ,933	,585	15 28 16,23	40 Libræ	
	40,5	8,7	8 36,8	5,0	33,0	8 36,80	,031	+ ,556	,523	20 8 37,85	u^2 Capricorni	
	37,8	6,0	17 34,7	3,9	32,6	17 35,00	,030	+ ,686	,538	20 17 36,19	π Capricorni	
	23,6	52,5	30 21,7	50,5	19,5	30 21,56	,030	+ ,686	,538	20 30 22,75	o Capricorni	
	23,2	52,5	41 21,8	51,1	20,4	41 21,80	,030	+ ,643	,536	20 41 22,95	☽ 2 L.	
	44,2	13,4	54 42,7	11,8	41,0	54 42,62	,030	+ ,729	,544	20 54 43,86	η Capricorni	
	23,0	51,1	0 19,4	47,5	15,5	0 19,30	,031	+ ,534	,520	21 0 20,32	ν Aquarii	
	8,5	40,0	48 12,4	44,0	16,5	48 12,28	,028	+ ,990	,592	22 48 13,83	Fomalhaut	S.
	20,0	48,2	56 16,8	45,5	13,7	56 16,84	,034	— ,028	,526	22 56 17,30	α Pegasi	
	33,4	4,6	59 36,0	7,7	38,8	59 36,10	,036	— ,369	,580	23 59 36,28	α Andromedæ	
	31,0	59,8	4 28,0	56,4	24,9	4 28,02	,034	— ,027	,526	00 4 28,49	γ Pegasi	
	17,0	5,5	30 54,4	42,8	30,9	30 54,12	,043	— 1,48	,902	0 30 53,50	α Cassiopeæ	
June 1	7,0	36,6	32 6,4	36,0	5,8	33 14,53	,047	— ,215	,634	4 33 14,90	⊙ 1 L.	S.
	23,3	53,0	34 22,7	52,5	22,0					4	⊙ 2 L.	
	52,2	22,8	19 53,0	23,5	53,0	19 52,90	,051	— ,280	,644	7 19 53,21	♀ Centrum	
	39,4	14,8	9 50,2	25,5	0,9	9 50,16	,051	— ,741	,759	11 9 50,13	p Ursæ Major	
	25,0	53,8	16 22,5	50,9	19,8	16 22,40	,040	+ ,678	,615	11 16 23,65	γ Hyd. and Crat.	
	41,5	9,1	21 36,9	4,4	31,9	21 36,76	,043	+ ,341	,589	11 21 37,65	c Leonis	
	7,0	34,8	28 2,9	30,0	57,7	28 2,48	,041	+ ,492	,595	11 28 3,53	θ Hyd. and Crat.	
	10,9	38,7	37 6,1	33,9	1,5	37 6,22	,045	+ ,127	,594	11 37 6,90	ν Virginis	
	23,0	50,8	46 18,7	46,6	14,4	46 18,70	,045	+ ,080	,596	11 46 19,33	A Virginis	
	7,7	35,2	55 2,9	30,5	58,0	55 2,86	,045	+ ,151	,593	11 55 3,56	* Virginis	
	18,8	2,6	2 46,9	30,4	14,9	2 46,72	,031	+ 1,890	,944	12 2 49,52	ρ Centauri	
	16,9	44,1	11 11,9	39,1	6,6	11 11,72	,043	+ ,290	,588	12 11 12,55	η Virginis	
	10,2	45,8	19 20,9	55,9	31,0	19 20,76	,036	+ 1,290	,748	12 19 22,76	u Centauri	
	39,4	7,2	33 34,4	1,9	29,4	33 34,46	,043	+ ,286	,588	12 33 35,29	γ^2 Virginis	
	55,0	24,8	44 54,4	24,0	53,9	44 54,42	,047	— ,222	,637	12 44 54,79	q Comæ Berenicis	
L= 0″,67 E.	13,3	40,9	55 8,8	36,0	3,6	55 8,52	,043	+ ,357	,589	12 55 9,42	k^4 Virginis	
A=19″,60 W.	9,0	37,0	4 5,3	33,7	1,7	4 5,34	,045	+ ,014	,603	13 4 5,91	* Virginis	R.
C= 7″,62 E.	41,5	18,0	9 54,8	31,7	8,2	9 54,84	,053	— ,833	,785	13 9 54,74	h Can. Ven	
	46,2	13,7	26 41,3	9,0	36,3	26 41,30	,042	+ ,396	,591	13 26 42,24	ζ^3 Virginis	
	34,6	4,0	32 33,7	2,7	32,0	32 33,40	,047	— ,188	,530	13 32 33,70	1 Bootis	
	13,3	42,1	39 11,2	40,1	8,8	39 11,10	,047	— ,125	,620	13 39 11,55	τ Bootis	
	39,8	19,5	44 59,3	39,1	18,8	44 59,30	,033	+ 1,640	,853	13 45 1,76	ζ Centauri	
	52,8	31,3	51 10,0	48,4	27,0	51 9,90	,033	+ 1,560	,825	13 51 12,25	μ^2 Centauri	
	55,0	22,6	3 50,6	18,4	46,3	3 50,58	,041	+ ,508	,596	14 3 51,64	κ Virginis	

	I	II	III	IV	V	Mean.	Corrections for Level —	Azimuth	Coll. +	Transit over the Meridian.	NAMES.	Observed by
1831	*s.*	*s.*	*m. s.*	*s.*	*s.*	*m. s.*	*s.*	*s.*	*s.*	*h. m. s.*		
June 1	1,0	39,6	15 18,5	56,8	35,5	15 18,28	,033	+ 1,550	,825	14 15 20,62	τ^2 Lupi	
	49,1	31,3	21 14,0	56,3	38,8	21 13,90	,031	+ 1,790	,910	14 21 16,57	σ Lupi	
	31,8	3,0	37 34,4	5,5	36,5	37 34,24	,049	— ,378	,666	14 37 34,48	ε Bootis	
	35,1	4,2	43 33,5	2,6	31,8	43 33,44	,047	— ,160	,625	14 43 33,86	ξ Bootis	
	59,4	26,8	51 54,7	22,5	50,2	51 54,72	,041	+ ,470	,595	14 51 55,75	δ Libræ	
	49,8	20,3	59 50,7	21,0	51,6	59 50,68	,031	+ 1,894	,943	14 59 53,48	ζ Lupi	
	26,0	6,1	6 46,4	26,8	7,2	6 46,50	,033	+ 1,670	,866	15 6 49,01	μ Lupi	
	55,0	29,7	18 4,6	39,5	14,2	18 4,60	,051	— ,702	,747	15 18 4,60	μ Bootis	
	58,8	26,7	25 54,6	22,5	50,1	25 54,54	,041	+ ,508	,597	15 25 55,60	f Libræ	
	12,7	41,6	32 10,9	39,7	8,8	32 10,74	,040	+ ,735	,623	15 32 12,06	κ Libræ	
	55,5	24,1	33 53,8	22,4	51,5	33 53,46	,040	+ ,621	,608	21 33 54,65	☽ 2 L.	S.
	3,5	31,9	44 0,5	28,8	57,0	44 0,34	,040	+ ,621	,608	21 44 1,53	μ Capricorni	
	16,7	45,5	57 13,9	42,0	10,6	57 13,74	,040	+ ,627	,608	21 57 14,94	ι Aquarii	
	9,0	40,5	48 12,8	44,9	16,5	48 12,74	,038	+ 1,050	,683	22 48 14,44	Fomalhaut	
	20,1	48,8	56 17,4	45,8	13,9	56 17,20	,046	— ,027	,607	22 56 17,73	α Pegasi	

The above column "Transit over the meridian" being transcribed into book No. 1, we have from the same.

	NAMES.	App. A.R. + Clock Er.	Aberration, &c.	Mean A.R. Jan. 1, 1831 + Clock Er.	Greenwich Mean A.R. Jan. 1, 1831.	Difference or Clock Error.	Error computed from Mean.	Mean Places Jan. 1, 1831.	Mean Errors of Clock.
1831		*h. m. s.*	*s.*	*h. m. s.*	*h. m. s.*	*s.*	*s.*	*h. m. s.*	
May 31	⊙ 1 L.....						— 4,76		
S.	⊙ 2 L.....								
	p Ursæ Major..	11 9 49,58	— 0,41	11 9 49,17			4,66	11 9 53,83	
	Ursæ Min....	11 27 19,44	— 0,61	11 27 18,83			4,66	11 27 23,49	
	92 Leonis.....	11 31 55,56	— 0,70	11 31 54,86			4,66	11 31 59,52	
	α^2 Crucis.....	12 17 13,59	— 2,80	12 17 10,79			4,65	12 17 15,44	
	n Comœ Ber....	12 38 8,86	— 1,09	12 38 7,77			4,65	12 38 12,42	
R.	τ Bootis.....	13 39 11,02	— 1,39	13 39 9,63			4,03	13 39 13,66	
	β Centauri.....	13 51 58,39	— 3,57	13 51 54,82			4,03	13 51 58,85	
R. + 0″,48	κ Virginis.....	14 3 51,31	— 1,76	14 3 49,55	14 3 53,61	— 4,06	4,03	14 3 53,58	
S. + 0″,18	λ Bootis.....	14 9 54,77	— 1,51	14 9 53,26	14 9 57,24	3,98	4,03	14 9 57,29	
Mean.	θ Bootis.....	14 19 24,12	— 1,61	14 19 22,51	14 19 26,50	3,99	4,02	14 19 26,53	
= + 0″,38	ρ Bootis.....	14 24 30,25	— 1,55	14 24 28,70	14 24 32,75	4,05	4,02	14 24 32,72	R. at 15*h.* 20*m.*
	π Bootis.....	14 32 44,71	— 1,61	14 32 43,10	14 32 47,13	4,03	4,02	14 32 47,12	
	ξ Bootis.....	14 43 33,50	— 1,63	14 43 31,87	14 43 35,84	3,97	4,02	14 43 35,89	12 = — 4″,01
	κ Centauri.....	14 48 10,80	— 2,69	14 48 8,11			4,02	14 48 12,13	
	β Bootis.....	14 55 32,49	— 1,71	14 53 30,78	14 55 34,85	4,07	4,01	14 53 34,79	
	β Cricini.....	15 4 21,03	— 3,82	15 4 17,21			4,01	15 4 21,22	
	μ Bootis.....	15 18 4,21	— 1,77	15 18 2,44	15 18 6,50	4,06	4,01	15 18 6,45	
	40 Libræ.....	15 28 16,23	— 2,37	15 28 13,86	15 28 18,02	4,16	4,01	15 28 17,87	
	α^2 Capricorni...	20 8 37,85	— 1,46	20 8 36,39	20 8 40,34	3,95	3,94	20 8 40,33	
	π Capricorni....	20 17 36,19	— 1,44	20 17 34,75			3,93	20 17 38,68	
	o Capricorni.....	20 30 22,86	— 1,36	20 30 21,50			3,93	20 30 25,43	
	☽ 2 L.....	20 41 22,95					3,93		
	η Capricorni....	20 54 43,86	— 1,21	20 54 42,65	20 54 46,72	4,07	3,93	20 54 46,58	
	ν Aquarii.....	21 0 20,32	— 1,16	21 0 19,16	21 0 22,90	3,74	3,93	21 0 23,09	

		NAMES.	App. A.R. + Clock Er.	Aber-ration, &c.	Mean A.R. Jan. 1, 1831 + Clock Er.	Greenwich Mean A.R. Jan. 1, 1831.	Difference or Clock Error.	Error computed from Mean.	Mean Places Jan. 1, 1831.	Mean Errors of Clock.
1831			*h. m. s.*	*s.*	*h. m. s.*	*h. m. s.*	*s.*	*s.*	*h. m. s.*	
	S.	Fomalhaut....	22 48 13,83	— 0,32	22 48 13,51	22 48 17,65	— 4,14	— 4,38	22 48 17,89	
		a Pegasi.....	22 56 17,30	— 0,67	22 56 16,63	22 56 20,96	4,33	4,38	22 56 21,01	S. at 23*h.* 40*m.*
		a Andromedæ..	23 59 36,28	— 0,37	23 59 35,91	23 59 40,12	4,21	4,37	23 59 40,28	
		γ Pegasi.....	0 4 28,49	— 0,28	0 4 28,21	0 4 32,62	4,41	4,37	0 4 32,58	5 = — 4″,37
		a Cassiopeæ....	0 30 53,50	— 0,36	0 30 53,14	0 30 57,93	4,79	4,36	0 30 57,50	
June	1	⊙ 1 L.....	4 33 14,90					4,31		
	S.	⊙ 2 L.....						4,27		
		♀	7 19 53,21					4,21	11 9 53,94	
		p Ursæ Major..	11 9 50,13	— 0,40	11 9 49,73			4,20	11 16 26,91	
		γ Hyd. and Crat.	11 16 23,65	— 0,94	11 16 22,71	11 16 26,78	4,07	4,20	11 21 31,01	
		e Leonis.....	11 21 37,65	— 0,84	11 21 26,81	11 21 40,97	4,16	4,20	11 28 6,80	
		θ Hyd. and Crat.	11 28 3,53	— 0,93	11 28 2,60	11 28 6,96	4,36	4,20	11 37 10,27	S. at 11*h.* 35*m.*
		ν Virginis.....	11 37 6,90	— 0,83	11 37 6,07	11 37 10,34	4,27	4,20	11 46 23,15	
		A Virginis.....	11 46 19,33	— 0,88	11 46 18,95			4,20	11 55 6,81	5 = — 4,″20
		* Virginis.....	11 55 3,56	— 0,95	11 55 2,61			4,20	12 2 51,73	
		ρ Centauri.....	12 2 49,52	— 1,99	12 2 47,53			4,19	12 11 15,66	
		η Virginis.....	12 11 12,55	— 1,08	12 11 11,47	12 11 15,62	4,15	4,19	12 19 25,23	
		u Centauri.....	12 19 22,76	— 1,72	12 19 21,04			4,19	12 33 38,29	
		γ^2 Virginis.....	12 33 35,29	— 1,19	12 33 34,10			4,19	12 44 57,90	
		q Comæ Ber....	12 44 54,79	— 1,08	12 44 53,71			4,18	12 55 12,25	
		k^4 Virginis.....	12 55 9,42	— 1,35	12 55 8,07					
	R.	* Virginis.....	13 4 5,91	— 1,25	13 4 4,66			3,63	13 4 8,29	
		h Can Ven.....	13 9 54,74	— 1,14	13 9 53,60			3,63	13 9 57,23	
		ι^3 Virginis.....	13 26 42,24	— 1,53	13 26 40,71			3,62	13 26 44,33	
		1 Bootis	13 32 33,70	— 1,33	13 32 32,37			3,62	13 32 35,99	
		τ Bootis	13 39 11,55	— 1,39	13 39 10,16			3,62	13 39 13,78	R. at 14*h.* 51*m.*
		ζ Centauri.	13 45 1,76	— 2,61	13 44 59,15			3,62	13 45 2,77	6 = — 3″,59
		μ^2 Centauri.....	13 51 12,25	— 2,58	13 51 9,67			3,61	13 51 13,28	
		κ Virginis... ..	14 3 51,64	— 1,75	14 3 49,89	14 3 53,61	— 3,72	3,61	14 3 53,50	
R. + 0″,43		τ^2 Lupi.....	14 15 20,62	— 2,70	14 15 17,92			3,61	14 15 21,53	
S. + 0″,49		σ Lupi.....	14 21 16,57	— 2,98	14 21 13,59			3,60	14 21 17,19	
Mean.		ϵ Bootis.....	14 37 34,48	— 1,59	14 37 32,89	14 37 36,36	3,47	3,60	14 37 36,49	
= + 0″,45		ξ Bootis.....	14 43 33,86	— 1,63	14 43 32,23	14 43 35,84	3,61	3,59	14 43 35,82	
		δ Libræ.....	14 51 55,75	— 1,88	14 51 53,87	14 51 57,28	3,41	3,59	14 51 57,46	
		ζ Lupi.....	14 59 53,48	— 3,26	14 59 50,22			3,59	14 59 53,81	
		μ Lupi	15 6 49,01	— 3,02	15 6 45,99			3,59	15 6 49,58	
		μ Bootis.....	15 18 4,60	— 1,76	15 18 2,84	15 18 6,50	3,66	3,58	15 18 6,42	
		f Libræ.....	15 25 55,70	— 2,00	15 25 53,70			3,58	15 25 57,28	
		κ Libræ.....	15 32 12,06	— 2,20	15 32 9,86	15 32 13,54	3,68	3,58	15 32 13,44	
	S.	☽ 2 L.....	21 33 54,65							
		μ Capricorni....	21 44 1,53	— 0,92	21 44 0,61	21 44 4,64	4,03	3,93	21 44 4,54	
		i Aquarii.....	21 57 14,94	— 0,84	21 57 14,10	21 57 18,19	4,09	3,93	21 57 18,03	S. at 22*h.* 21*m.*
		Fomalhaut....	22 48 14,44	— 0,35	22 48 14,09	22 48 17,65	3,56	3,91	22 48 18,00	4 = — 3″,90
		a Pegasi.....	22 56 17,73	— 0,70	22 56 17,03	22 56 20,96	3,93	3,91	22 56 20,94	

Taking the difference between Columns 7 and 8, we get the errors of each single Observation by

Observer R.				Observer S.			
May 31		June 1		May 31		June 1	
s.		s.		s.		s.	
0,03	—	0,11	——	0,24	—	0,13	
,05	—	,13	——	0,05	—	,04	
,03	—	,02	——	0,16	—	,16	
,03	—	,18	——	0,04	—	,07	
,01	—	,08	——	0,43	—	,04	
,05	—	,10	——			,10	
,06			——			,16	
,05			——			,35	
,15			——			,02	
,01			——				
,14			——				
,19			——				
Mean error of one Observation....		,079	——			,142	

On insepting the Clock errors at pages 34 and 35, it is found that little or no difference exists between the times at which the observers M, A and T note the passage of a Star, this however was not always the case, with the first observations a difference of from three to five tenths of a second of time in excess invariably occurred between M and A when compared with T. Comparing the Clock errors by observers R and S as last found it appears from the observations of 31st May that observer R noted the time in excess above observer S = 0,47 and from the observations of 1st June that R noted the time in excess 0,55; we will now see if this difference continues constant, for which purpose we will examine the observations on two days near the end of the year as follows.

	I	II	III	IV	V	Mean.	Corrections for Level —	Azimuth	Coll. +	Transit over the Meridian.	Names.	Observed by
1831	s.	s.	m. s.	s.	s.	m. s.	s.	s.	s.	h. m. s.		
December 24	42,2	12,8	9 42,5	12,7	42,7	10 53,58	,257 +	,986	,681	18 10 54,99	⊙ 1 L.	S.
		34,4	12 4,5	34,7	4,7					18	⊙ 2 L.	
			4 10,9				2,70 —	53,17	20,38	1 3 35,41	Polaris	
	19,6	13,7	18 7,7	1,7	55,5	18 7,64	,403 —	2,15	1,227	1 18 6,31	δ Cassiopeæ	
	40,1	7,7	24 35,5	2,9	30,5	24 35,34	,292 +	,207	,625	1 24 35,88	μ Piscium	
	32,51,8		34 35,7	35,27,7	36,19	34 35,71	,182 +	2,72	1,186	1 34 39,43	α Eridani	
	29,8	58,8	39 27,8	55,9	24,6	39 27,38	,266 +	,793	,652	1 39 28,56	τ Ceti	
	33,6	2,9	47 32,5	0,7	29,8	47 31,90	,310 —	,150	,659	1 47 32,10	γ Arietis	
		51,4,0	52 31,6	53,58,6	55,25,5	52 31,47	,487 —	4,108	1,954	1 52 28,83	50 Cassiopeæ	
	44,4	42,0	4 9,5	37,0	4,3	4 9,44	,292 +	,255	,625	2 4 10,03	62 Ceti	R.
	4,3	33,4	12 2,2	31,2	0,1	12 2,24	,310 —	,164	,661	2 12 2,43	θ' Arietis	
	51,2	19,1	18 47,0	14,6	42,4	18 46,86	,297 +	,109	,631	2 18 47,30	* Ceti	
	38,5	20,3	24 2,0	43,0	24,8	24 1,72	,213 +	2,01	,943	2 24 4,46	κ Eridani	
	11,5	39,4	30 7,0	34,8	2,3	30 7,00	,297 +	,186	,627	2 30 7,52	* Ceti	

	I	II	III	IV	V	Mean.	Corrections for Level —	Azimuth	Coll. +	Transit over the Meridian.	Names.	Observed by
1831	s.	s.	m. s.	s.	s.	m. s.	s.		s.	h. m. s.		
December 24	43,9	11,2	34 40,3	8,2	36,6	34 40,04	,275	+ ,672	,640	2 34 41,08	ε Ceti	R.
	24,9	53,1	39 21,7	50,9	18,2	39 21,60	,270	+ ,731	,645	2 39 22,71	π Ceti	
	20,2	51,0	43 21,9	52,6	23,1	43 21,76	,323	— ,396	,696	2 43 21,74	c Arietis	
	53,3	22,9	52 52,2	21,7	50,9	52 52,20	,315	— ,209	,666	2 52 52,34	c Arietis	
	46,2	14,1	57 41,9	9,9	37,6	57 41,94	,279	+ ,562	,630	2 57 42,85	ρ^2 Eridani	
		27,0	10 55,0	22,8		10 54,93	,275	+ ,588	,640	3 10 55,88	ζ Eridani	
	6,0	33,8	19 1,8	29,7	57,0	19 1,66	,297	+ ,123	,630	3 19 2,12	o Tauri	
L= 4″,43 E.		21,8	22 2,2	43,0		22 2,33	,363	— 1,26	,932	3 22 1,64	σ Persei	
A=22″,78 E.	13,9	51,0	27 27,8	4,9	41,7	27 27,86	,226	+ 1,67	,841	3 27 30,15	ε Eridani	
C= 8″,45 E.		5,4	31 32,9	0,3		31 32,87	,288	+ ,346	,631	3 31 33,56	E Tauri	
	50,2	27,4	37 4,6	41,9	19,2	37 4,66	,350	— ,104	,842	3 37 4,11	ν Persei	
	26,2	56,3	42 26,4	51,5	26,3	42 26,34	,319	— ,303	,681	3 42 26,40	*f* Pleiadum	
	46,3	18,8	46 51,0	23,0	55,1	46 50,84	,328	— ,560	,731	3 46 50,68	ζ Persei	
	24,9	5,5	59 46,0	26,8	7,0	59 46,04	,363	— 1,25	,922	3 59 45,35	ε Persei	
	32,8	1,8	16 30,6	59,2	28,0	16 30,48	,306	— ,112	,654	4 16 30,72	δ^1 Tauri	
	22,7	51,2	22 20,0	48,7	17,1	22 19,94	,306	— ,056	,648	4 22 20,23	θ^2 Tauri	
	45,0	13,0	29 40,9	8,8	36,6	29 40,86	,297	— ,089	,632	4 29 41,11	*d* Tauri	
	1,2	29,5	33 57,8	26,0	53,8	33 57,66	,301	— ,032	,638	4 33 57,96	c^2 Tauri	
	12,0	46,7	39 21,4	56,0	30,4	39 21,30	,239	+ 1,47	,787	4 39 23,32	β Cœli Sculp	
	20,7	49,0	46 17,2	45,7	14,0	46 17,32	,306	+ ,026	,743	4 46 17,78	o^1 Orionis	
	57,2	53,0	51 48,0	Cloudy	38,5	51 48,14	,403	— 2,24	1,255	4 51 46,75	*d* Camelopardi	
	48,0	24,6	58 1,1	37,4	13,8	58 0,98	,346	— ,945	,828	4 58 0,52	η Aurigæ	
	50,5	18,2	7 45,8	13,3	40,7	7 45,70	,292	+ ,278	,625	5 7 46,31	ρ Orionis	
	12,2	39,9	55 7,5	35,1	2,5	55 7,44	,292	+ ,227	,625	10 55 8,00	*d* Leonis	
	54,2	22,9	33 50,8	18,9	47,0	33 50,76	,297	+ ,174	,628	11 33 51,26	☽ 2 L.	
	56,0	23,9	39 51,6	19,7	47,2	39 51,68	,297	+ ,102	,632	11 39 52,12	ξ^1 Virginis	
	15,9	43,4	45 11,0	38,3	6,0	45 10,92	,292	+ ,278	,625	11 45 11,53	β Virginis	
	34,5	2,2	54 30,0	57,8	25,5	54 30,00	,297	+ ,145	,629	11 54 30,48	π Virginis	
	57,6	25,4	59 53,5	21,1	48,9	59 53,30	,297	+ ,094	,633	11 59 53,73	o Virginis	
25			14	42,1	12,1					18		
	34,7	4,9	16 34,9	5,0	34,8	16 34,86	,256	+ ,985	,681	18 16 36,27	☉ 1 L.	R.
	14,5	42,0	19 9,7	37,2	4,8	19 9,64	,282	+ ,426	,625	0 19 10,41	☉ 2 L.	
	28,8	1,1	24 32,8	4,0	35,0	24 34,34	,322	— ,473	,713	0 24 34,26	* Ceti	
	21,7	49,9	31 18,2	46,7	15,0	31 18,30	,304	— ,032	,644	0 31 18,61	28 Andromedæ	
	3,6	32,0	37 0,3	28,3	56,5	37 0,14	,260	+ ,913	,669	0 37 1,46	53 Piscium	
	7,1	38,0	44 8,9	39,8	10,5	44 8,86	,322	— ,394	,700	0 44 8,84	* Ceti	
	15,6	45,5	49 15,1	45,0	14,9	49 15,22	,318	— ,386	,696	0 49 15,21	ι Piscium	
	37,9	6,0	53 34,0	2,1	30,0	53 34,00	,273	+ ,662	,639	0 53 35,03	k Piscium	
	58,6	28,0	59 57,3	26,8	56,0	59 57,34	,313	— ,209	,667	0 59 57,49	ϕ^4 Ceti	
	24,9	52,5	11 20,1	47,6	15,0	11 20,02	,282	+ ,428	,625	1 11 20,79	ψ^1 Piscium	
	23,9	18,2	18 12,0	5,8	59,8	18 11,94	,401	— 2,150	1,227	1 18 10,62	39 Ceti	
	43,6	11,6	24 39,1	6,8	34,3	24 39,12	,291	+ ,227	,625	1 24 39,68	δ Cassiopeæ	
	32,0	0,1	31 28,2	56,2	24,0	31 28,10	,300	+ ,045	,637	1 31 28,48	μ Piscium	
	41,1	10,5	36 39,8	9,0	37,9	36 39,66	,309	— ,176	,663	1 36 39,84	π Piscium	
	33,1	2,1	39 31,0	59,8	28,5	39 30,90	,265	+ ,793	,652	1 39 32,08	107 Piscium	
	37,7	6,9	47 35,8	4,7	33,5	47 35,72	,309	— ,150	,659	1 47 35,92	τ Ceti	
		51,9,2	52 36,0	54,3,2		52 36,13	,485	— 4,108	2,000	1 52 33,54	γ Arietis	
		55,4,15	56 40,8	57,40,0		56 40,77	,159	+ ,313	,136	1 56 45,10	50 Cassiopeæ	
	16,2	43,7	4 11,2	38,9	6,1	4 11,22	,291	+ ,255	,625	2 4 11,81	α Hydri	
	5,9	35,0	12 4,1	33,1	2,0	12 4,02	,309	— ,164	,661	2 12 4,21	62 Ceti	
	40,7	22,0	24 3,6	45,0	26,3	24 3,52	,212	+ 2,010	,943	2 24 6,26	θ^1 Arietis	
L= 4″,41 E.	48,9	17,4	30 45,0	13,1	41,0	30 45,08	,300	+ ,035	,638	2 30 45,45	κ Eridani	
A=22″,78 E.	45,7	13,9	34 41,9	10,1	38,2	34 41,96	,273	+ ,672	,640	2 34 43,00	U Arietis	
C= 8″,45 E.	37,40,0	38,57,0	40 14,0	41,31,5	42,48,0	40 14,10	,123	+ 4,067	1,690	2 40 19,73	ε Ceti	
	15,0	42,8	56 10,7	38,5	6,0	56 10,60	,278	+ ,562	,630	2 56 11,51	ρ^1 Eridani	

	I	II	III	IV	V	Mean.	Corrections for Level —	Azimuth	Coll. +	Transit over the Meridian.	Names.	Observed by
1831	*s.*	*s.*	*m.* *s.*	*s.*	*s.*	*m.* *s.*	*s.*	*s.*	*s.*	*h.* *m.* *s.*		
December 25	21,5	57,6	0 33,5	9,5	45,3	0 33,48	,344 —	,913	,818	3 0 33,04	β Persei	
	33,4	2,9	8 32,1	1,5	30,9	8 32,16	,309 —	,208	,666	3 8 32,31	ζ Arietis	
	7,5	5,0	31 32,5	0,1	27,7	31 32,56	,287 +	,346	,624	3 31 33,24	E Tauri	S.
	49,5	26,9	37 4,0	40,8	17,8	37 3,80	,348 —	,104	,842	3 37 4,19	ν Persei	
	25,8	55,9	42 25,7	55,9	25,6	42 25,78	,318 —	,729	,681	3 42 25,41	f Pleiadum	
	45,8	17,8	46 50,4	22,7	54,5	46 50,24	,326 —	,560	,731	3 46 50,09	$^1\zeta$ Persei	
		4,5	59 44,8	25,5	6,5	59 45,12	,362 —	1,250	,829	3 59 44,34	c Persei	
	28,7	10,0	5 50,8	32,3	12,9	5 50,94	,362 —	1,300	,934	4 5 50,21	μ Persei	
	23,7	1,7	11 39,0	16,8	53,4	11 38,92	,225 +	1,730	,844	4 11 41,27	α Horologii	
	32,5	1,2	16 30,0	58,8	27,6	16 30,02	,304 —	,112	,654	4 16 30,26	δ^1 Tauri	
	——	34,7	22 3,7	33,0	1,5	22 3,74	,309 —	,159	,595	4 22 3,87	e Tauri	
	44,5	12,8	29 40,5	8,5	36,4	29 40,54	,295 +	,089	,633	4 29 40,97	d Tauri	
	25,5	55,5	35 25,4	55,5	25,3	35 25,44	,313 —	,270	,676	4 35 25,53	τ Tauri	
	25,4	53,3	40 20,3	47,8	15,8	40 20,52	,282 +	,428	,625	4 40 21,29	μ Eridani	
	20,0	48,6	46 16,6	45,5	13,4	46 16,82	,304 —	,026	,743	4 46 17,23	o^1 Orionis	
	49,56,6	50,52,5	51 48,3	52,42,6	53,37,7	51 47,54	,401 —	2,240	1,255	4 51 46,15	d^1 Camelopardi	
	46,9	23,5	57 59,8	36,8	12,5	57 59,90	,344 —	,945	,828	4 57 59,44	η Aurigæ	
	49,7	17,7	7 45,7	12,4	40,0	7 45,10	,291 +	,278	,625	5 7 45,71	ρ Orionis	
	29,5	57,6	15 25,6	53,8	21,9	15 25,68	,273 +	,670	,640	5 15 26,72	ν Leporis	
	26,6	54,5	19 21,6	49,7	17,7	19 22,02	,384 +	,184	,628	5 19 22,45	γ Orionis	
	——	30,5	25 3,4	35,5	7,7	25 3,09	,326 —	,585	,664	5 25 2,84	κ Aurigæ	
	31,5	59,6	30 27,0	54,8	22,5	30 27,08	,278 +	,503	,627	5 30 27,93	ι Orionis	
	24,4	54,4	38 23,8	53,8	23,6	38 24,00	,260 +	,957	,676	5 38 25,37	12 Leporis	
	37,7	6,6	42 34,6	3,4	31,3	42 34,72	,269 +	,731	,646	5 42 35,83	ζ Leporis	
	8,6	41,5	48 16,3	49,9	24,2	48 16,10	,218 +	1,410	,770	5 48 18,06	β Columbæ	
	2,6	31,2	51 58,9	28,0	56,6	51 59,46	,269 +	,728	,644	5 52 0,56	η Leporis	
	12,5	42,4	57 11,6	40,6	9,8	57 11,38	,309 —	,192	,665	5 57 11,54	χ^3 Orionis	
	46,0	43,9	5 42,2	39,3	36,9	5 41,66	,410 —	2,390	1,309	6 5 40,17	α Lyncis	
	48,5	30,3	15 Hazy	54,5	36,7	15 12,61	,366 —	1,390	,867	6 15 11,72	d Aurigæ	
	15,5	44,9	22 14,4	43,5	13,2	22 14,30	,198 +	2,280	1,031	6 22 17,41	α Argus	
	14,6	44,5	11 13,5	42,3	12,1	11 13,40	,309 —	,192	,664	14 11 13,56	α Bootis	

The above column "Transit over the meridian" being transcribed into book No. 1, we have from the same.

	Names.	App. A.R. + Clock Er.	Aberration, &c.	Mean A.R. Jan. 1, 1831 + Clock Er.	Greenwich Mean A.R. Jan. 1, 1831.	Difference or Clock Error.	Error computed from Mean.	Mean Places Jan. 1, 1831.	Mean Errors of Clock.
1831		*h.* *m.* *s.*	*s.*	*h.* *m.* *s.*	*h.* *m.* *s.*	*m.* *s.*	*m.* *s.*	*h.* *m.* *s.*	
Dec. 24	⊙ 1 L.....	18 10 54,99					3 12,20		
S.	⊙ 2 L.....								
	Polaris.....	1 3 35,41	— 38,96	1 2 56,45	0 59 45,70	*3 10,75	3 12,67		
	δ Cassiopeæ....	1 18 6,31	— 4,32	1 18 1,99	1 14 49,61	3 12,38	3 12,70	1 14 49,29	
	μ Piscium.....	1 24 35,88	— 2,75	1 24 33,13			3 12,70	1 21 20,43	S. at 1h. 31m.
	α Eridani.....	1 34 39,43	— 1,85	1 34 37,58			3 12,71	1 31 24,87	3 = 3′ 12″,71
	τ Ceti.....	1 39 28,56	— 2,44	1 39 26,12	1 36 13,23	3 12,89	3 12,72	1 36 13,40	
	γ Arietis.....	1 47 32,10	— 2,93	1 47 29,17	1 44 16,32	3 12,85	3 12,73	1 44 16,44	
	50 Cassiopeæ...	1 52 28,83	— 6,62	1 52 22,21	1 49 10,55	*3 11,66	3 12,73	1 49 9,48	

* These are omitted in taking the mean.

	Names.	App. A.R. + Clock Er.	Aber-ration, &c.	Mean A.R. Jan. 1, 1831 + Clock Er.	Greenwich Mean A.R. Jan. 1, 1831.	Difference or Clock Error.	Error computed from Mean.	Mean Places Jan. 1, 1831.	Mean Errors of Clock.
1831		*h. m. s.*	*s.*	*h. m. s.*	*h. m. s.*	*m. s.*	*m. s.*	*h. m. s.*	
Dec. 24	62 Ceti.....	2 4 10,03	— 2,94	2 4 7,09			3 14,82	2 0 52,27	
R.	θ^1 Arietis.....	2 12 2,43	— 3,37	2 11 59,06	2 8 44,48	3 14,58	3 14,82	2 8 44,24	
	* Ceti.....	2 18 47,30	— 3,12	2 18 44,18			3 14,83	2 15 29,35	
	κ Eridani.....	2 24 4,46	— 2,30	2 24 2,16			3 14,83	2 20 47,33	
	* Ceti.....	2 30 7,52	— 3,12	2 30 4,40			3 14,81	2 26 49,59	
	ϵ Ceti.....	2 34 41,08	— 2,85	2 34 38,23	2 31 23,70	3 14,53	3 14,81	2 42 23,42	
	π Ceti.....	2 39 22,71	— 2,85	2 39 19,86	2 36 4,94	3 14,92	3 14,85	2 36 5,01	
	c Arietis.....	2 43 21,74	— 3,67	2 43 18,07	2 40 3,26	3 14,81	3 14,86	2 40 3,21	
R. + 1″,65	ϵ Arietis.....	2 52 52,34	— 3,57	2 52 48,77	2 49 33,86	3 14,91	3 14,87	2 49 33,90	
	ρ^2 Eridani.....	2 57 42,85	— 3,01	2 57 39,84			3 14,88	2 54 24,96	
	ζ Eridani.....	3 10 55,88	— 3,05	3 10 52,83	3 7 37,76	3 15,07	3 14,89	3 7 37,94	
	o Tauri.....	3 19 2,12	— 3,40	3 18 58,72	3 15 43,78	3 14,94	3 14,90	3 15 43,82	R. at 3*h.* 19*m.*
	σ Persei.....	3 22 1,64	— 4,88	3 21 56,76			3 14,90	3 18 41,86	12 = 3′ 14″,90
	$\varkappa$ Eridani.....	3 27 30,15	— 2,91	3 27 27,24			3 14,91	3 24 12,33	
	E Tauri.....	3 31 33,56	— 3,00	3 31 30,56			3 14,91	3 28 15,65	
	ν Persei.....	3 37 4,11	— 4,64	3 36 59,47	3 33 44,39	3 15,08	3 14,92	3 33 44,55	
	f Pleiadum.....	3 42 26,40	— 3,88	3 42 22,52			3 14,92	3 39 7,60	
	ζ Persei.....	3 46 50,68	— 4,24	3 46 46,44	3 43 31,61	3 14,83	3 14,93	3 43 31,51	
	ϵ Persei.....	3 59 45,35	— 5,09	3 59 40,26			3 14,95	3 56 25,31	
	δ^1 Tauri.....	4 16 30,72	— 3,82	4 16 26,90	4 13 11,87	3 15,03	3 14,97	4 13 11,93	
	θ^2 Tauri.....	4 22 20,23	— 3,79	4 22 16,44	4 19 1,36	3 15,08	3 14,98	4 19 1,46	
	d Tauri.....	4 29 41,11	— 3,67	4 29 37,44			3 14,99	4 26 22,45	
	c^2 Tauri.....	4 33 57,96	— 3,73	4 33 54,23			3 14,99	4 30 39,24	
	β Cæli Scalp...	4 39 23,32	— 3,00	4 39 20,32			3 15,00	4 36 5,32	
	o^1 Orionis.....	4 46 17,78	— 3,82	4 46 13,96			3 15,01	4 42 58,95	
	d^1 Camelopardi.	4 51 46,75	— 6,70	4 51 40,05			3 15,01	4 48 25,04	
	η Aurigæ.....	4 58 0,52	— 4,88	4 57 55,64	4 54 40,57	3 15,07	3 15,02	4 54 40,62	
	ρ Orionis.....	5 7 46,31	— 3,62	5 7 42,69			3 15,03	5 4 27,66	
	d Leonis.....	10 55 8,00	— 2,67	10 55 5,33	10 51 49,79	3 15,54	3 15,53	10 51 49,80	
	☽ 2 L.....	11 33 51,26	—						R. at 11*h.* 31*m.*
	ξ^1 Virginis.....	11 39 52,12	— 2,38	11 39 49,74	11 36 34,10	3 15,64	3 15,51	11 36 34,23	4 = 3′ 15″,57
	β Virginis.....	11 45 11,53	— 2,22	11 45 9,31	11 41 53,78	3 15,53	3 15,58	11 41 53,73	
	π Virginis.....	11 55 30,48	— 2,28	11 55 28,20	11 52 12,08	+3 16,12	3 15,69	11 52 12,51	
	o Virginis.....	11 59 53,73	— 2,23	11 59 51,50	11 56 35,95	3 15,55	3 15,60	11 56 35,90	
25	⊙ 2 L.....	18 16 36,27							
R.	* Ceti.....	0 19 10,41	— 2,23	0 19 8,18			3 16,45	0 15 51,73	
	28 Andromedæ..	0 24 34,26	— 2,62	0 24 31,68			3 16,46	0 21 15,22	
	53 Piscium.....	0 31 18,61	— 2,50	0 31 16,11			3 16,46	0 27 59,65	
	* Ceti.....	0 37 1,46	— 2,25	0 36 59,21			3 16,47	0 33 42,74	
	i Piscium.....	0 44 8,84	— 2,76	0 44 6,08			3 16,48	0 40 49,60	
	k Piscium.....	0 49 15,21	— 2,80	0 49 12,41			3 16,49	0 45 55,92	
	ϕ^4 Ceti.....	0 53 35,03	— 2,32	0 53 32,71			3 16,49	0 50 16,21	
	Ψ^1 Piscium.....	0 59 57,49	— 2,76	0 59 54,73			3 16,50	0 56 38,23	
	39 Ceti.....	1 11 20,79	— 2,55	1 11 18,24			3 16,51	1 8 1,73	
	δ Cassiopeæ....	1 18 10,62	— 4,29	1 18 6,33	1 14 49,61	3 16,72	3 16,52	1 14 49,81	
	μ Piscium.....	1 24 39,68	— 2,73	1 24 36,95	1 21 20,21	3 16,74	3 16,53	1 21 20,42	
	π Piscium.....	1 31 28,48	— 2,87	1 31 25,61	1 28 9,07	3 16,54	3 16,53	1 28 9,08	
	107 Piscium....	1 36 39,84	— 3,04	1 36 36,80			3 16,54	1 33 20,26	
	τ Ceti.....	1 39 32,08	— 2,43	1 39 29,65	1 36 13,23	3 16,42	3 16,54	1 36 13,11	
	γ Arietis.....	1 47 35,92	— 2,96	1 47 32,96	1 44 16,32	3 16,64	3 16,55	1 44 16,41	
	50 Cassiopeæ....	1 52 33,54	— 6,51	1 52 27,03	1 49 10,55	3 16,48	3 16,56	1 49 10,47	

† The Madras Observations indicate an error of 0,6 in the Greenwich determination of the A.R. of this Star it is therefore omitted.

	Names.	App. A.R. + Clock Er.	Aber-ration, &c.	Mean A.R. Jan. 1, 1831 + Clock Er.	Greenwich Mean A.R. Jan. 1, 1831.	Difference or Clock Error.	Error computed from Mean.	Mean Places Jan. 1, 1831.	Mean Errors of Clock.
1831		*h. m. s.*	*s.*	*h. m. s.*	*h. m. s.*	*m. s.*	*m. s.*	*h. m. s.*	
Dec. 25	α Hydri.....	1 56 45,10	— 1,84	1 56 43,26			3 16,56	1 53 26,70	R. at 1*h.* 52*m.*
	62 Ceti.....	2 4 11,21	— 2,93	2 4 8,28			3 16,57	2 0 51,71	9 = 3′ 16″,56
	θ^1 Arietis.....	2 12 4,21	— 3,28	2 12 0,93	2 8 44,48	16,45	3 16,58	2 8 44,34	
	κ Eridani.....	2 24 6,26	— 2,28	2 24 3,98			3 16,59	2 20 47,39	
	U Arietis.....	2 30 45,45	— 3,22	2 30 42,23			3 16,60	2 27 25,63	
	ϵ^1 Ceti.....	2 34 43,00	— 2,84	2 34 40,16	2 31 23,70	16,46	3 16,60	2 31 23,56	
	ϵ Hydri.....	2 40 19,73	— 1,96	2 40 17,77			3 16,61	2 37 1,16	
	ρ^1 Eridani.....	2 56 11,51	— 3,00	2 56 8,51			3 16,63	2 52 51,88	
	β Persei.....	3 0 33,04	— 4,29	3 0 28,75	2 57 12,11	16,64	3 16,64	2 57 12,11	
	ζ Arietis.....	3 8 32,31	— 3,64	3 8 26,67			3 16,65	2 5 12,02	
S.	E Tauri.....	3 31 33,24	— 3,27	3 30 29,97			3 14,25	3 27 15,72	
	ν Persei.....	3 37 3,25	— 4,64	3 36 58,61	3 33 44,39	3 14,22	3 14,25	3 33 44,36	
	f Pleiadum	3 42 25,41	— 3,88	3 42 21,53			3 14,26	3 39 7,27	
	ζ Persei.....	3 46 50,09	— 4,18	3 46 45,91	3 43 31,61	3 14,30	3 14,26	3 43 31,65	
	c Persei.....	3 59 44,34	— 5,09	3 59 39,25			3 14,28	3 56 24,97	
	μ Persei.....	4 5 50,21	— 5,18	4 5 45,03	4 2 31,09	3 13,94	3 14,29	4 2 30,74	
R. + 1″,76	α Horologii.....	4 11 41,27	— 2,86	4 11 38,41			3 14,30	4 8 24,11	
S. + 1″,42	δ Tauri.....	4 16 30,26	— 3,82	4 16 26,44	4 13 11,87	3 14,57	3 14,31	4 13 12,13	
Mean.	ϵ Tauri.....	4 22 3,87	— 3,89	4 21 59,98	4 18 45,45	3 14,53	3 14,32	4 18 45,66	S. at 4*h.* 46*m.*
= + 1″,64	*d* Tauri.....	4 29 40,97	— 3,96	4 29 37,01			3 14,32	4 26 22,69	13 = 3′ 14,″34
	τ Tauri.....	4 35 25,53	— 4,04	4 35 21,49	4 32 6,82	3 14,67	3 14,33	4 32 7,16	
	μ Eridani.....	4 40 21,29	— 3,44	4 40 17,85			3 14,33	4 37 3,52	
	o^4 Orionis.....	4 46 17,23	— 3,82	4 46 13,41			3 14,34	4 42 59,07	
	d^1 Camelopard..	4 51 45,75	— 6,70	4 51 39,05	4 48 25,16	3 13,89	3 14,34	4 48 24,71	
	η Aurigæ.....	4 57 59,44	— 4,89	4 57 54,55	4 54 40,57	3 13,98	3 14,35	4 54 40,20	
	ρ Orionis.....	5 7 45,71	— 3,63	5 7 42,08			3 14,36	5 4 27,72	
	ν Leporis.....	5 15 26,72	— 3,38	5 15 23,34			3 14,37	5 12 8,97	
	γ Orionis.....	5 19 22,45	— 3,70	5 19 18,75	5 16 4,20	3 14,55	3 14,37	5 16 4,38	
	χ Aurigæ.....	5 25 2,84	— 4,48	5 24 58,36			3 14,38	5 21 43,98	
	ι Orionis.....	5 30 27,93	— 3,49	5 30 24,44	5 27 10,22	3 14,22	3 14,39	5 27 10,05	
	12 Leporis.....	5 38 25,37	— 3,29	5 38 22,08			3 14,40	5 35 7,68	
	ζ Leporis.....	5 42 35,83	— 3,38	5 42 32,45	5 39 18,13	3 14,32	3 14,40	5 39 18,05	
	β Columbæ.....	5 48 18,06	— 3,20	5 48 14,86	5 45 0,21	3 14,65	3 14,41	5 45 0,45	
	η Leporis.....	5 52 0,56	— 3,37	5 51 57,19	5 48 42,67	3 14,52	3 14,42	5 48 42,77	
	χ^3 Orionis.....	5 57 11,54	— 4,06	5 57 7,48			3 14,42	5 53 53,06	
	α Leporis.....	6 5 40,17	— 6,93	6 5 33,24			3 14,43	6 2 18,81	
	d Aurigæ.....	6 15 11,72	— 5,44	6 15 6,28			3 14,44	6 11 51,84	
	α Argus.....	6 22 17,41	— 3,27	6 22 14,14			3 14,45	6 18 59,69	
	α Bootis.....	14 11 13,56	— 1,16	14 11 12,40	14 7 57,37	3 15,03	3 15,02	14 7 57,38	

The above errors of the Clock shew that differences to the astonishing amount of 2″,07 and 2″,39 existed between the times at which the observers R and S noted the passage of Stars on the 24th and 25th December respectively, whereas we have found at page 41 that a difference of only half a second occurred in the observations of these observers on the 31st May and 1st June, it will consequently be interesting to inspect the differences for each day which are here subjoined.

Observer R noted the time in excess above observer S.

1831		Remarks.
	s.	
April 18	+ 0,11	two observations.
19	+ 0,31	two observations.
20	— 0,11	
21	— 0,17	
22	+ 0,10	
23	+ 0,30	
24	+ 0,17	
May 15	+ 0,56	
16	+ 0,46	
17	+ 0,26	
18	+ 0,29	
19	+ 0,28	
20	+ 0,79	
21	+ 0,59	
22	+ 0,56	
23	+ 0,28	only one observation.
26	+ 0,53	
27	+ 0,52	
29	+ 0,62	
30	+ 0,56	
31	+ 0,47	
June 1	+ 0,55	
3	+ 0,77	
4	+ 0,57	
5	+ 0,60	
6	+ 0,60	
7	+ 0,87	
8	+ 0,97	
15	+ 0,98	
20	+ 0,89	
27	+ 1,52	only two observations.
28	+ 0,68	
29	+ 1,45	
30	+ 1,10	
July 3	+ 1,20	
7	+ 1,02	
10	+ 0,83	
12	+ 0,69	
13	+ 0,75	
14	+ 0,54	
17	+ 0,60	
22	+ 0,72	
25	+ 0,58	
28	+ 0,69	
Aug. 1	+ 0,86	
9	+ 0,93	
10	+ 0,51	
11	+ 0,38	
12	+ 0,91	
23	+ 0,57	
26	+ 0,51	
28	+ 0,45	
29	+ 0,61	
30	+ 1,45	
Sept. 1	+ 1,09	

1831		Remarks.
	s.	
Sept. 3	+ 1,11	
4		
9	+ 1,05	
11	+ 1,00	
13	+ 1,05	
14	+ 1,06	
15	+ 0,90	
20	+ 1,26	
21	+ 1,53	
22	+ 1,69	
24	+ 1,89	
29	+ 2,70	5 observ. by S and 10 by R.
30	+ 2,12	
Oct. 2	+ 1,98	
3	+ 1,70	
5	+ 2,52	
6	+ 2,56	
8	+ 2,32	
14	+ 2,74	
17	+ 2,77	
21	+ 2,36	
22	+ 2,53	
23	+ 2,68	
25	+ 2,70	
30	+ 3,21	one observation by S.
31	+ 2,53	
Nov. 1	+ 2,93	
2	+ 2,91	
3	+ 2,62	
4	+ 2,65	
5	+ 2,92	
6	+ 2,55	
8	+ 2,74	
9	+ 2,61	
10	+ 2,60	
20	+ 2,48	
21	+ 2,35	
27	+ 2,18	only one Star observed.
Dec. 2	+ 2,26	
3	+ 2,26	
5	+ 3,36	
6	+ 3,43	one observation.
7	+ 2,98	
8	+ 2,73	
12	+ 2,63	
13	+ 2,58	
15	+ 2,28	
16	+ 1,99	
19	+ 1,96	
20		M — R = 0,16.
21	+ 2,05	
24	+ 2,07	
25	+ 2,39	
29	+ 2,56	

On comparing recent observations I find that observers R, T and M very nearly agree in estimating the instant of the passage of a Star, this it will be recollected was found to be the case with the observations at the earlier part of the year, hence it is fair to presume that the change which has taken place between R and S is chargeable on the latter observer only: to account for this difference which is found between one observer and another we are led to suppose an error either in the ear or eye, or possibly in both of these organs; now any error arising from the former would be constant with the same observer for every Star, whereas the latter would introduce an error depending on the nature and magnitude of the body observed and on the apparent rapidity of its motion through the field of the telescope; thus, if from an over anxiety peculiar to young observers, the first edge of the wire or the first edge of the Star should be observed instead of the centre then in the former case an error would be committed (with the lines now in use) to the amount of $\frac{0',073}{sin.\ N.P.D.}$ and in the latter (for bright Stars) to probably five times this amount, but these are wholly insufficient to account for the enormous differences above found, it will however be desirable to ascertain if the Clock errors vary with the declination of the Star, for this purpose I have reduced each separate error to the same instant of time by means of the daily Rate for the sake of comparison as follows.

Comparison of the Clock errors as found by observer S.

Days.	Names.	A. R.	Error of Clock at Passage.	Error of Clock at *h. m.* 1 31	Declination.	
1831		*h. m.*	*m. s.*	*m. s.*	° ′	
December 24	τ Ceti	1 39	+ 3 12,89	+ 3 12,88	— 16 50	
	γ Arietis	1 47	12,85	12,83	+ 18 27	
	ε Cassiopeæ	1 18	12,38	12,40	+ 59 21	
	50 Cassiopeæ	1 52	11,66	11,64	+ 71 36	
			Passage.	*h. m.* at 4 46		
25	ε Orionis	5 30	+ 3 14,22	+ 3 14,17	— 6 1	
	γ Orionis	5 16	14,55	14,52	+ 6 11	
	η Leporis	5 52	14,52	14,44	— 14 12	
	ζ Leporis	5 42	14,32	14,25	— 14 53	
	α Tauri	4 16	14,57	14,60	+ 17 8	
	ε Tauri	4 22	14,53	14,56	+ 18 48	
	α Bootis	14 11	15,03	14,38	— 20 9	
	τ Tauri	4 35	14,67	14,68	+ 22 37	
	ζ Persei	3 47	14,30	14,37	+ 31 22	
	β Columbæ	5 48	14,65	14,59	— 35 50	
	η Aurigæ	4 54	13,98	13,97	+ 41 0	
	ν Persei	3 37	14,22	14,30	+ 42 2	
	μ Persei	4 5	13,94	13,99	+ 47 58	
	d[1] Camelopar.	4 51	13,89	13,88	+ 60 11	

The above two cases shew that an error varying with the declination of the Star really does exist; to ascertain its value let x represent the true error of the Clock, and e the error committed, and we have the following equations of conditions.

December 24.	December 25.
m. s.	m. s.
$x - 3\ 12{,}88 = \frac{e}{{,}957}$	$x - 3\ 14{,}17 = \frac{e}{{,}994}$
$x - 3\ 12{,}83 = \frac{e}{{,}949}$	$x - 3\ 14{,}52 = \frac{e}{{,}994}$
$x - 3\ 12{,}40 = \frac{e}{{,}510}$	$x - 3\ 14{,}44 = \frac{e}{{,}969}$
$x - 3\ 11{,}64 = \frac{e}{{,}316}$	$x - 3\ 14{,}25 = \frac{e}{{,}966}$
	$x - 3\ 14{,}60 = \frac{e}{{,}956}$
	$x - 3\ 14{,}56 = \frac{e}{{,}947}$
	$x - 3\ 14{,}38 = \frac{e}{{,}939}$
	$x - 3\ 14{,}68 = \frac{e}{{,}923}$
	$x - 3\ 14{,}37 = \frac{e}{{,}854}$
	$x - 3\ 14{,}59 = \frac{e}{{,}811}$
	$x - 3\ 13{,}97 = \frac{e}{{,}755}$
	$x - 3\ 14{,}30 = \frac{e}{{,}743}$
	$x - 3\ 13{,}99 = \frac{e}{{,}670}$
	$x - 3\ 13{,}88 = \frac{e}{{,}497}$

eleminating e so that the sum of the squares of the errors may be a minimum

from the observations of the 24th we have $e = {}^{s}{,}58$

——— —— 25th —— $= {}^{s}{,}50$

Hence to turn the above observations to account it becomes necessary to apply to each *mean error* of the Clock a correction

$\frac{1}{n}\left(\frac{e}{sin.\ P.} + \frac{e}{sin.\ P.^{1}} + \frac{e}{sin.\ P.^{2}} + \&c. \frac{e}{sin.\ P.\ n}\right)$ where P. P.^{1} express the Polar distance of the several Stars which are employed in determining the Clock's error; and in computing the column S from this *corrected mean error*, a correction $-\frac{e}{sin.\ P.}$ must be employed. I have here supposed the error to be committed by the observer; but it is plain that an error of the Instrument

either in Azimuth or Collimation would equally well reconcile all the above observations; to decide upon this point we will now examine the observations by R on these two days; arranging them in order of declination we have

December 24.

NAMES.	A. R.	Error of the Clock at Passage.	Error of the Clock at h. m. 3 19	Declination.
	h. m.	m. s.	m. s.	° ′
θ Tauri....	3 19	+ 3 14,94	3 14,94	+ 8 26
ζ Eridani..	3 7	15,07	15,08	— 9 27
ε Ceti.....	2 31	14,53	14,58	— 12 36
π Ceti.....	2 36	14,92	14,97	— 14 34
θ^2 Tauri...	4 19	15,08	15,02	+ 15 29
δ^1 Tauri...	4 13	15,03	15,97	+ 17 80
θ^1 Arietis..	2 52	14,58	14,65	+ 19 70
α Arietis...	2 52	14,91	14,94	+ 20 40
c Arietis...	2 40	14,81	14,85	+ 26 34
ζ Persei....	3 43	14,83	14,81	— 31 22
η Aurigæ..	4 54	15,07	14,98	— 41 00
ν Persei....	3 33	15,08	15,07	— 42 20

December 25.

NAMES.	A. R.	Error of the Clock at Passage.	Error of the Clock at h. m. 1 52	Declination.
	h. m.	m. s.	m. s.	° ′
μ Piscium..	1 21	— 3 16,74	3 16,77	+ 5 16
π Piscium..	1 31	16,54	16,57	+ 11 16
ϵ^1 Ceti.. ..	2 34	16,46	16,41	— 12 36
τ Ceti.. ...	1 36	16,42	16,43	— 16 50
ν Arietis...	1 44	16,64	16,65	+ 18 28
θ^1 Arietis..	2 12	16,45	16,43	+ 19 70
β Persei. ..	2 57	16,64	16,57	+ 40 58
δ Cassiop...	1 14	16,72	16,76	+ 59 21
50 Cassiop...	1 52	16,48	16,48	+ 71 36

Here we find that the Clock errors are in no wise affected by the declination of the Star; and further, I may remark that this solitary instance is confirmed by the totality of the observations during the year; whence it appears that by observers R, T and M the Clock errors given by Stars wherever situated agree among themselves; but that the observations by S with but one or two exceptions exhibit an error *e*, of the nature above found as follows.

1831	Value of e	REMARKS.	1831	Value of e	REMARKS.
	s.			s.	
April 22	0,29		June 6	0,41	one observation only
23	0,62		7	0,41	
24	0,00		8	0,28	one observation
25	0,50		21	0,26	
26	0,44		July 7	0,36	
May 1	0,86		10	0,32	
2	0,61		11	0,99	
6	1,20		12	0,90	
12	0,83		13	0,80	
16	0,68		13	0,37	
18	1,10		22	0,71	
20	0,42		25	0,21	
26	0,45		28	0,28	
31	0,73		Aug. 9	0,93	
June 2	0,18		10	0,90	one observation affording but a small coefficient I have used 1s,10
4	0,60		11	1,75	
5	0,40		23	1,31	

1831	Value of e	REMARKS.	1831	Value of e	REMARKS.
	s.			*s.*	
Aug. 26	1,47	only one observ. the observations by R indicate $e = 0^s,27$ from 3 observ. on the 29th & 30th.	Oct. 22	1,29	
29	2,21		23	1,60	
30	2,10		25	1,78	
31	0,80	δ Urs Min	30	1,42	
Sept. 1	1,06	δ Urs Min gives $0^s,30$ for e observations by R $0^s,35$	31		
2			Nov. 2	1,70	
3	1,98		8	1,64	
4		δ Urs Min by R gives $-0^s,03$ other Stars — — $+0^s,30$	9	0,90	
9	0,30		12	1,25	
13	0,93	δ Urs Min $e = 0^s,00$	20	0,55	
14	1,00	δ Urs Min $e = 0^s,30$	21	0,95	
15	1,20		30	0,33	
16	0,30	δ Urs Min	Dec. 1	0,00	only one observation
20	1,31		3	0,93	
22	1,20		5	1,00	
24	1,08		7	0,32	
28	1,28	A very good set of observations by R give $e = 0^s,03$	8	0,78	
29	1,25		12	1,23	
Oct. 2	1,45	R gives $e = 0^s,00$	16	0,73	
2	0,75	Morning observations	18	0,66	
3	0,94		19	0,76	
6	0,76		24	0,60	
7	0,89		25	0,52	
12	1,43		26	1,70	
14	1,34		28	1,08	
17	1,67		29	0,68	
21	0,71		30	1,12	

Two observations of δ Urs Min by R on 10th and 11th of August give $e = 0,04$ and $0,00$ respectively.
One ——— ——— by T on the 27th ——— give $e = 0,33$

On employing with the observations by S the value of e found above, the agreement is such as to forbid their being rejected, which at the commencement of the enquiry I feared would be a necessary measure; in the case of the Sun, Moon and Planets, and of Stars situated above 30° from the Pole the observations by observer S will I estimate be doubtful to less than one tenth of a second; I have therefore reduced all the observations by S with these values rejecting only the observations of those Stars which are situated within this limit, but these I am happy to state are few and far between. The observations by R indicate an error $e = 0^s,30$ between the 27th August and 4th September, but since this does not occur at any other period during the year, (in the absence of any cause to explain why it should thus happen) in cases where its effect is less than one tenth of a second I have prefered not to allow for it, and to reject the remaining observations.

The Table which now follows exhibits the daily rate of the Clock as determined by the Sun and by Stars; from the column of differences which is annexed, some sort of estimate can be formed of the dependance to be placed in a single observation of the Sun.

Comparison of the Rate of the Transit Clock as determined by the Sun with that determined by the Stars.

1831	Clock Rate by Sun.	Clock Rate by Stars.	Difference.	Remarks.
	s.	*s.*	*s.*	
Feb. 18 & 19		— 4,49		
20		— 4,51		
21	— 3,45	— 3,52	0,07	
22	.....	.....	....	The Clock stopt for 23 seconds without any apparent cause.
23		— 4,36		
24	— 3,95	— 3,75	0,20	
25	— 3,49	— 3,80	0,31	
26		— 3,96		
27	— 4,27	— 4,13	0,14	
28		— 4,38		
March 1		— 4,51	....	Stopt 10*s.* in winding.
2	.....	.....	....	Regulated.
3	.....	.....	....	Stopt 6 seconds.
4	.....	.....	....	Stopt 10 seconds.
5		+ 7,88	....	I applied oil to the escapement.
6		+ 7,77		
7	— 7,30	+ 7,70	0,40	
8	.....	.....	....	Regulated.
9		— 0,30		
10	— 0,39	— 0,38	0,01	
11	+ 0,04	— 0,00	0,40	
12	— 0,26	— 0,00	0,26	
13	+ 0,05	— 0,01	0,06	
14	— 0,02	— 0,25	0,23	
15	— 0,17	— 0,19		
16	+ 0,67			
17		+ 1,20	....	The Clock had stopt 1*s.* in the night.
18	+ 0,62	+ 0,55	0,07	
19		+ 0,78		
20	+ 0,55	+ 0,75	0,20	
21		+ 0,88		
22	+ 0,68	+ 0,35	0,33	
23	+ 0,03	+ 0,10	0,07	
24	+ 0,28	+ 0,23	0,05	
25	+ 0,17	+ 0,55	0,38	
26	+ 0,75	+ 0,42	0,33	
27		— 0,10		
28	+ 0,22	+ 0,45	0,23	
29	+ 0,20	— 0,05	0,25	
30	— 0,23	— 0,07	0,16	
31	— 0,18	— 0,30	0,12	
April 1		+ 0,37		
2	+ 0,23	+ 0,29	0,06	
3		+ 0,40		
4		— 0,24		
5		+ 0,29		

1831	Clock Rate by Sun.	Clock Rate by Stars.	Difference.	Remarks.
	s.	*s.*	*s.*	
April 6	+ 0,02	+ 0,03	0,01	
7	— 0,23	+ 0,02	0,25	
8		— 0,23		
9	+ 0,20			
10		+ 0,16		
11		— 0,25		
12		*		
13	+ 2,21	+ 2,46	0,25	
14	+ 2,31	+ 2,57	0,26	
15		+ 1,47		
16	+ 1,29	+ 1,05	0,24	
17		+ 1,07		
18	— 0,18	+ 0,75		
19	+ 1,11	+ 0,82	0,29	
20	+ 0,65	+ 0,85	0,20	
21	.....	.....	....	The Clock stopt about 10*s.* without any apparent cause.
22		+ 1,48		
23		+ 1,08		
24		+ 0,61		
25	+ 0,19	+ 0,56	0,36	
26		+ 0,81		
27		+ 0,50		
28		+ 0,58		
29	+ 0,99	+ 0,85	0,14	
30	+ 0,59	+ 0,53	0,06	
May 1		+ 0,65		
2	+ 0,63	+ 0,82	0,19	
3	+ 1,20	+ 1,19	0,01	
4		+ 1,15		
5		+ 1,96		
6		+ 1,22		
7	+ 0,77	+ 0,95	0,18	
10	+ 0,86	+ 0,99		
11		+ 0,91		
12	+ 0,69			
13	+ 0,53	+ 0,58	0,05	
14	+ 0,93	+ 0,63	0,30	
15		+ 0,51		
16	+ 0,22	+ 0,30	0,08	
17	+ 0,40	+ 0,22	0,18	
18	+ 0,52	+ 0,32	0,20	
19	+ 0,28	+ 0,26	0,02	
20	+ 0,25	+ 0,55	0,30	
21	+ 0,57	+ 0,26	0,30	
22	+ 0,22	+ 0,26	0,04	
23	+ 0,47	+ 0,25	0,22	

* Evening observations from 4 to 8 P. M. give the Rate — 0,13
—— —— —— 8 to 12 P. M. — — — + 0,09
Next morning —— 6 to 9 A. M. — — — + 0,82

1831		Clock Rate by Sun.	Clock Rate by Stars.	Difference.	Remarks.
		s.	*s.*	*s.*	
May	24	+ 0,24	+ 0,11	0,13	
	25	+ 0,11	+ 0,13	0,02	
	26	— 0,24	— 0,10	0,14	
	27	— 0,14	+ 0,40	0,17	
	28		+ 0,60		
	29		+ 0,67		
	30		+ 0,22		
	31	+ 0,73	+ 0,38	0,35	
June	1	— 0,10	+ 0,45	0,55	
	2	+ 0,61	+ 1,02	0,41	
	3	+ 1,45	+ 0,96	0,49	
	4	+ 0,73	+ 1,01	0,28	
	5	+ 0,26	+ 0,52	0,26	
	6	+ 0,74	+ 0,81	0,07	
	7	+ 1,28	+ 0,74	0,54	
	8	+ 0,45	+ 0,88	0,43	
	9	+ 0,84	— 0,73	0,11	
	10	+ 0,32	— 0,60		
	11	+ 1,23			
	12	+ 0,68	— 0,73		
	13	+ 1,02			
	14	+ 0,87	— 0,87		
	15	+ 0,86			
	16		— 0,78		
	19				
	20	+ 0,64			
	21		+ 0,68		
	22	+ 0,52	+ 0,77	0,25	
	23	+ 0,47	+ 1,06	....	The Clock has probably tript 1*s.* between the 24th and 25th.
	24	+ 0,50			
	25	+ 1,67			
	26		+ 0,50		
	27	+ 0,64			
	28	+ 0,61	+ 0,71	0,10	
	29	+ 0,34	+ 0,41	0,07	
	30	+ 0,65	+ 0,63	0,02	
July	1		+ 0,58		
	2	+ 0,31	+ 0,49	0,18	The Clock tript about 5*s.* in the night.
	3	+ 0,16			
	4		+ 1,07		
	5				
	6				
	7	+ 0,45	+ 0,60	0,15	
	8	+ 0,25	+ 0,43		
	9				
	10	+ 0,55	+ 0,56	0,01	
	11		+ 0,24		
	12		+ 0,33		
	13	+ 0,21	+ 0,07	0,14	
	14		+ 0,22		
	15		+ 0,62		
	16	+ 0,56			
	17		+ 0,48		
	21	+ 0,83	+ 0,80	0,03	
	22				

1831		Clock Rate by Sun.	Clock Rate by Stars.	Difference.	Remarks.
		s.	*s.*	*s.*	
July	24	+ 0,52	+ 0,42	0,10	
	25		+ 0,42		
	26	+ 0,50	+ 0,57	0,07	
	27		+ 0,24		
	28	+ 0,46			
	29		+ 0,27		
	30	+ 0,30	+ 0,80	0,50	Only two Stars observed the rate by the Sun is therefore entitled to the same weight as that by the Stars.
	31	+ 0,57	+ 0,56		
August	1				
	2	+ 0,51			
	3				
	4	+ 0,64			
	5	+ 0,69	+ 0,63	0,06	
	6	+ 0,81			
	7	+ 0,36			
	8	+ 0,93	+ 0,66	0,27	
	9				
	10	+ 0,55	+ 0,63	0,08	
	11		+ 0,66		
	12	+ 0,45	+ 0,65	0,20	
	13	+ 0,69			
	14	+ 0,23	+ 0,69		
	18	+ 0,83			
	20	+ 0,69			
	21		+ 0,82		
	22	+ 0,56	+ 0,46		
	23				
	24	+ 0,33	+ 0,29	0,04	
	25	+ 0,27	+ 0,47	0,20	
	26	+ 0,54	+ 0,55		
	27		+ 0,58		
	28		+ 0,56		
	29	+ 0,89	+ 0,88	0,01	
	30		+ 0,87		
	31		+ 1,33		
September	1	+ 1,06	+ 0,55	0,49	
	2		+ 0,95		
	3		+ 1,01		
	4		+ 1,17		
	5				
	7	+ 0,64	+ 0,77	0,13	
	8	+ 1,14	+ 0,73		
	9				
	10		+ 0,82		
	11	+ 0,98			
	12	+ 1,04			
	13	+ 0,39	+ 0,79	0,40	
	14	+ 0,78	+ 0,56	0,22	
	15	+ 0,53	+ 0,85	0,32	
	16	+ 1,18	+ 0,70	0,48	
	17	+ 0,62	+ 0,80	0,18	
	19	+ 0,90	+ 0,93		
	20	+ 1,14			
	21		+ 0,99		
	22	+ 0,54	+ 1,04	0,50	

1831	Clock Rate by Sun.	Clock Rate by Stars.	Difference.	Remarks.
	s.	s.	s.	
September 24	+ 1,24	+ 1,07	0,17	
25	+ 0,67			
26	+ 1,07	+ 0,70	0,37	
27	+ 0,52			
28	+ 0,48	+ 0,69	0,21	
29	+ 0,35	+ 0,28	0,07	
30		+ 0,96		
October 2		+ 0,94		
3		+ 1,25		
4		+ 0,89		
5	+ 0,72	+ 0,93	0,21	
6	+ 0,84	+ 0,97	0,13	
7	+ 0,99	+ 1,02	0,03	
8	+ 1,02	+ 1,09	0,07	
12	+ 1,13	+ 1,04	0,09	
13	+ 1,19	+ 1,02		
14	+ 1,18			
15	+ 0,75	+ 0,98		
16				
17	+ 1,08			
20		+ 1,15		
21	+ 1,24	+ 1,13	0,11	
22	+ 1,08	+ 1,15	0,07	
23	+ 0,77	+ 1,03	0,26	
24	+ 1,29	+ 1,01		
25		+ 1,32	....	Only one wire of the Sun observed.
29		+ 1,31		
30		+ 1,19		
31		+ 0,99		
November 1	+ 1,39	+ 1,19	0,20	
2	+ 1,22	+ 1,10	0,12	
3	+ 1,43	+ 1,36	0,07	
4		+ 1,20		
5		+ 1,45		
6		+ 1,26		
8		+ 1,18		
9	+ 1,38	+ 1,22	0,16	
10	+ 1,42	+ 1,30	0,12	
12	+ 1,26	+ 1,21	0,05	

1831	Clock Rate by Sun.	Clock Rate by Stars.	Difference.	Remarks.
	s.	s.	s.	
November 18				
19	+ 1,32			
20		+ 1,17		
21	+ 1,64	+ 1,19	0,45	
22	+ 1,53	+ 1,62	0,09	
27		+ 1,49		
28		+ 1,18		
29				
30	+ 1,09			
December 1		+ 1,49		
2	+ 1,32	+ 1,12	0,20	
3	+ 1,10	+ 1,41	0,31	
4	+ 1,17	+ 1,11	0,06	
5	+ 1,24			
6	+ 1,07	+ 1,44	0,37	
7	+ 1,39	+ 1,30	0,09	
8	+ 1,22	+ 1,68	0,46	
9	+ 1,69	+ 1,75		
10		+ 1,56		
11	+ 1,97			
12		+ 1,79		
13	+ 1,67	+ 1,45	0,22	
14	+ 1,54	+ 1,64	0,10	
15	+ 1,64	+ 1,94	0,30	
16		+ 1,50		
17	+ 1,48			
18	+ 1,56	+ 1,51		
19				
20		+ 1,29		
21	+ 1,35	+ 1,30		
22	+ 1,26	+ 1,33		
23	+ 1,57			
24	+ 1,43	+ 1,65	0,22	
25		+ 1,66		
26	+ 1,51	+ 1,82	0,31	
28 to 29		+ 1,73		Only two observations
30	+ 1,75	+ 1,31	0,44	Only two observations
31				

Taking the mean it appears that the mean error of each rate by the Sun $= 0^s,199$ or the mean uncertainty of a single observation of the Sun may be stated at this amount, whereas for Stars the uncertainty does not I imagine much exceed the half of this.

OF THE MURAL CIRCLE.

This Instrument which is represented by Plate III, was constructed by Dollond on purpose for this Observatory; it consists of a circular brass ring 48 Inches diameter, firmly attached by sixteen conical spokes to the base of a hollow but strong conical axis; this axis is 3 feet long and from $5\frac{3}{4}$ Inches diameter at the end next the circle tapers down to a diameter of $2\frac{1}{2}$ Inches; the two ends E, *e*, Plate IV fig. 1. are accurately ground to admit of their working into collars *ab*, *ac*, attached to the ends of a hollow conical frustrum through which the axis passes; this conical frustrum is strengthened at its base *b* by the metal forming the collar in which the axis of the circle works, and is likewise strengthened at the smaller end *c* by the collar in which the other end of the axis works; the axis of the circle is made to fit the collars and retained in its place to any required degree of tightness by a plate of brass fastened by six screws to the smaller end of the axis, working upon the collar fig. 3; the whole frustrum passing through an aperture in the pier, reposes at the end *b* next the circle upon a flat brass plate *a*, *a*, fig. 2. which is firmly cemented and screwed to the stone pier; and is kept steady by a steel pin working into the collar at *b*; the further or smaller end is secured by four antagonizing screws *s*, *s*, *s*, *s*, fig. 3. working into a strong brass frame likewise very securely cemented and screwed to the pier; these screws are for the purpose of communicating small motions to the axis in order to level it or bring the circle into the plane of the meridians.

The Telescope is attached to the circular ring at each end by appropriate braces each secured by four strong screws; and is further supported in the middle by an axis (represented by dotted lines fig. 1.) which passes through the axis of the circle and is secured by a screw C affixed to its smaller end; the divisions of the circle (which are drawn upon a slip of gold let into its circumference to every five minutes of a degree) were effected upon an entirely new plan invented by Mr. Dollond, the principles of which have not been made public; I have not yet found time to examine into the accuracy attained on a large scale, but form a few divisions which *I have* inspected. I am able to state their accuracy is such as to place them in a class second to none. The circle is furnished with four spring micrometer microscopes which are firmly screwed to the pier Plate III, these (as they are of the ordinary construction) require no further description than a general one: the power of the microscopes is about 12; the micrometer screw acts upon a frame carrying a pair of wires crossing one another at an angle of 25° for the purpose of

reading off the circle; the value of the divisions of the micrometers were rendered equivalent to seconds by adjusting the distance of the object glass until five revolutions of the screw corresponded with the image of the interval between any two divisions of the circle, the centre of which was for this purpose placed opposite to the Zero point of the microscope; in reading off the circle that division which is nearest to the Zero point of the microscope is the one at which the bisection is always made. The object glass is 49 Inches focal length with a clear aperture of $3\frac{3}{4}$ Inches; the optical powers of this glass though inferior to those of the Transit Instrument, are such as do the highest possible credit to the maker and leave me nothing to desire on this head; the eye piece is made to slide and contains a power of about 140; the eye end is furnished with one horizontal, and five vertical fixed wires which are adjustable to horizontal and vertical positions by an arm acted upon by two opposing screws *a*, *a* fig. 4, and for Collimation by the screws *b*, *b*; to this is added a horizontal wire moveable by a screw micrometer C, adapted for measuring the difference of declination of Stars or the diameters of Planets, the circle is relieved from wear by two friction wheels which by appropriate weights are brought to bear upon a grooved circular plate, fig. 1. attached to the circle; by this means I estimate that one half or more of the weight of the circle is supported whereby the motion on its axis is rendered exceedingly pleasant and easy. The circle is furnished with four spring clamps of a very superior construction which are screwed to the stone pier (Plate III,) whereby the observer has always one conveniently situated within his reach; by a particular contrivance (due I believe to Mr. Dollond) the two pieces forming the clamp are brought at once to embrace the circle equally on both sides on the clamping screw being tightened thus leaving the circle free from strain and at the same time secure.

In the measurement of North Polar Distance with the Mural Circle the variation produced by deviations of the Instrument (to the amount of one or two minutes) in Level Azimuth or Collimation is so insensible that it is quite unnecessary to perform the adjustment or allow for its effect when within this limit; having this in view my first care on the erection of the Mural Circle was to adjust it to such accuracy as would render corrections unnecessary. The error of Level was discovered by observing the transit of any Star situated near the Zenith by direct vision over the 1st and 2d wires, these by means of the Equatoreal Interval were reduced to give the time of passing the centre wire; in a similar manner observing the transit of the reflected image of the same Star in a basin of quicksilver over the 4th and 5th wires gave also the time of passing the centre wire; the difference $\times$ 15 *sin.* N.P.D. $\div$ 2 *sin.* Altitude = error of Level.

The error for Azimuth was obtained from comparing the transits of known Stars situated at from 55° to 60° of N.P.D. with those at from 125° to 130° of N.P.D. by selecting these limits large coefficients are obtained in Azimuth and but small ones for Collimation, for if E, E^1, represent the errors of the Clock by any two Stars. P, P^1, their N.P.D. A, A^1, their Altitude. x = error in Azimuth. y = error in Collimation, we have

$$E - E^1 = \frac{x \cos. A}{15 \sin. P.} + \frac{x \cos. A^1}{15 \sin. P.^1} + \frac{y}{15 \sin. P.} - \frac{y}{15 \sin. P.^1}$$

In the above case where the sines of P and P^1 are nearly alike

$$x = E - E^1 \times \frac{15 \sin. P. \sin. P.^1}{\cos. A. \sin. P.^1 + \cos. A.^1 \sin. P.} \text{ nearly.}$$

The Azimuthal error being corrected, the Collimation error was determined by means of the Clock error found from the transits of known Stars situated near the Pole, compared with that given by Stars near the equator, for we have

$$y = E - E^1 \times \frac{15 \sin. P. \sin. P.^1}{\sin. P.^1 - \sin. P.}$$

In this way the amount of deviation for Level, Azimuth, and Collimation, was at first determined and the proper adjustment made; to discover if the deviation remained constant, or within allowable limits, I have from time to time compared the transits of Stars over the meridian wire, with those observed at the same time with the Transit Instrument; the result of these comparisons shew that the circle when left undisturbed has never erred in any way to the amount of 1′; this introducing but an insensible error in the determination of N.P.D. has been disregarded.

OF THE METEOROLOGICAL INSTRUMENTS.

Of two Barometers which were sent out to this country by Dollond with the Instrument above described, one only had arrived in safety; this on being compared with two others which had been formerly supplied, exhibited differences of two or three tenths of an Inch; to decide which among the three

was most entitled to credit, I set to work to fill a tube myself; after a little experience I succeeded in refilling a tube three times as follows.

From the mean of 10 observations	D — T	=	0,1114	Inches.
Emptied and refilled 10	——	=	,1153	„
Do. do. 10	——	=	,1007	„

The near agreement of these differences among themselves led me to suppose that my Barometer was not far from a good one on the one hand, whereas on the other hand, neither the difference of bore of the tubes nor difference of the specific gravities of the quicksilver accounting for the difference itself, I was assured that one or both of these were in error; in this dilemma I began to observe using Dollond's Barometer, and in the mean time applied through Government to the Surveyor General at Calcutta for the loan of the Meteorological Instruments which had recently been supplied to his office for the sake of comparison, this through the zeal which has always distinguished that Officer in affairs connected with scientific research, was most readily and liberally granted, for on my return to this Presidency from Calcutta in February last, I had the pleasure to find myself equipped with two Barometers, and two Thermometers, of the best possible construction, which at the recommendation of the Surveyor General the Supreme Government had allowed to be transfered to this Establishment.

The Barometers furnished to the Surveyor General's Office consisted of Nos. 3, 5, and 6, by Gilbert, constructed with glass cisterns for the adjustment of the Zero point; a Barometer by Troughton, known by the name of Colonel Blacker's standard, and another by the same maker constructed for the Pendulum experiments, both likewise fitted up with glass cisterns: from the mean of 5 careful readings on 27th January 1832, at the Surveyor General's Office.

	Reading Inches.	Cor. for Cap. Act.	Corrected Reading.	Specific Gravity of Quicksilver.
No. 3 by Gilbert.....	30,166	+ ,027	30,193	13,656
No. 5 ——	,135	,047	,182	13,656
No. 6 ——	,148	,051	,199	13,656
Colonel Blacker's Standard by Troughton....	,149	,039	,188	not given.
Barometer employed in Pendulum experiments by Troughton.	,169	,041	,210	not given.
Mean.....	——	——	30,194	

from the near agreement of these five Barometers *inter se*, little doubt can be entertained of the accuracy of one and all; the two which I was allowed to select were Nos. 3, and 6, by Gilbert; on my arrival at Madras my first care was to compare these Instruments with those which had heretofore been used;

that by Dollond had unfortunately been broken during my absence by a gale of wind on the 24th November, the comparison with that made by myself is as follows.

		Gilbert.		
		No. 3	No. 6	T
		Inches.	Inches.	Inches.
1832, February 25 Mean of 10 readings.....		30,028	30,013	29,921
March 1 Mean of 10 readings.....		30,086	30,076	29,984
Mean.....		30,057	30,044	29,952
Capilliary Action.....	+	,027	,051	,058
Corrected Reading.....		30,084	30,095	30,010
D — T.....				+ ,1007
D.....				30,1107

In the first place the small difference between Nos. 3 and 6, so nearly corresponding with that found on 27th January in Calcutta, affords a presumptive proof that neither of them have sustained any injury on the voyage, and the further agreement of these two with Dollond's Barometer (for we have D — G = ,027 Inches and 0,016 Inches respectively) will I apprehend justify the use of Barometers Nos. 3 and 6 by Gilbert as being sufficiently accurate for every practical purpose. At page 58 it appears that No. 3 differed only ,001 from the mean of five Barometers, I therefore propose in future to consider this the standard, hence it appears that when Dollond's Barometer was in use, its indications as set down in the Circle book were *too great* ,027 *but having neglected to employ the correction for capilliary action,* the registered indications are *too small* (,058 — ,027) = ,031; this holds good up to the 24th November, from this time to the end of the year a Barometer by Cary was employed; which on being compared with No. 3, gave

		Gilbert No. 3.	Cary.
1832, February	25..	29,990	29,864
	27..	30,016	29,875
	29..	30,077	29,959
March	1..	30,111	29,986
	2..	30,096	29,979
Mean.....		30,058	29,933
Capilliary Action....	+	,027	
		30,085	

hence it appears that the indications of the Barometer as registered in the

N.P.D.			N.P.D.		
23°	add to Greenwich Catalogue	0,38	63°	add to Greenwich Catalogue	0,92
28	do.	0,44	68	do.	0,99
33	do.	0,51	73	do.	1,06
38	do.	0,58	78	do.	1,16
43	do.	0,65	83	do.	1,29
48	do.	0,72	88	do.	1,42
53	do.	0,78	90	do.	1,50
58	do.	0,86			

By way of example we will now compute the Index Error for one day: from the observation Book we have

	Barometer.	Thermometer. In.	Thermometer. Out.	Instrumental Reading of A	B	C	D	Mean.		Names.
1831	Inches.	°	°	° ′ ″	″	″	″	″		
January 21	30,102	75,3	75,2	67 22 30,0	30,2	38,5	19,7	29,6		α Arietis
				82 0 3,0	2,7	16,5	50,5	3,2		☽ S. L.
				159 26 43,2	40,0	56,5	26,1	41,4		δ Hydri
				231 18 12,0	12,8	57,1	27,6	12,4		ε Ceti
				102 37 25,1	19,6	33,5	6,4	21,2		ζ Ceti
				80 38 18,5	17,7	31,0	3,2	17,6		μ Ceti
				158 16 19,8	16,8	26,8	59,8	15,8		* Hydri
				234 19 18,5	19,7	30,8	0,6	17,4	R.	η Eridani
				99 36 22,8	21,3	38,3	6,7	22,3	D.	η Eridani
	30,129	74,3	72,7	86 36 37,8	36,5	48,3	24,8	36,8		α Ceti
				69 37 25,3	23,4	33,8	15,0	24,4		ζ Arietis
				40 47 28,8	29,2	39,6	14,0	27,9		ω Persei
				80 53 46,0	45,2	58,8	32,0	45,5		ξ Tauri
				233 51 37,5	35,5	52,2	22,8	37,0	R.	ε Eridani
	30,124	74,3		100 4 0,9	56,8	12,8	43,9	58,6	D.	ε Eridani
				58 17 32,8	32,7	42,0	19,0	31,6		* Persei
				231 16 41,0	39,1	57,9	23,8	40,4	R.	π Eridani
				102 39 0,9	57,0	9,9	40,6	57,1	D.	π Eridani
				283 23 56,5	57,9	12,3	39,0	56,4	R.	ε Persei
	30,126	74,0	71,4	50 31 38,0	39,6	54,2	24,7	39,1	D.	ε Persei
				151 51 43,7	44,0	3,4	25,3	44,1		δ Reticuli
				81 34 52,9	50,1	5,6	37,2	51,4		μ Tauri
				124 14 18,8	10,4	26,6	59,7	13,9		χ Eridani
	30,138	73,2	70,6	75 42 44,5	40,5	55,5	26,0	41,6		π Tauri
				73 52 25,5	20,4	38,0	6,7	22,6		Aldeburan
				223 53 51,8	48,3	5,0	30,1	48,8	R.	54 Eridani
				110 1 49,7	45,2	2,0	34,3	47,8	D.	54 Eridani
				24 0 33,7	35,2	44,9	19,9	33,4		* Camelopardi
				76 4 29,0	24,0	38,5	9,1	25,1		o¹ Orionis
	30,144	73,0	68,9	281 29 41,6	48,3	55,2	25,1	42,6	R.	ω Aurigæ
				52 25 52,6	56,7	5,2	35,9	52,6	D.	ω Aurigæ
				68 41 40,0	40,4	56,8	29,2	41,6		ι Tauri
				74 39 45,8	41,7	59,5	29,9	44,2		γ² Orionis
	30,144	72,2	68,7	125 5 16,8	10,9	25,9	58,2	12,9		o Columbæ
				97 26 3,0	58,7	16,6	44,8	0,8		U Orionis
	30,150	72,0	68,5	124 11 26,2	28,1	36,2	8,0	24,6		α Columbæ
				30 12 48,8	47,0	58,1	34,7	47,1		31 Camelopardi
				82 40 56,1	53,7	10,4	40,6	55,2		α Orionis
	30,186	72,1	68,2	66 46 23,2	21,8	37,2	9,2	22,8		H Geminor

	Barometer.	Thermometer. In.	Thermometer. Out.	Instrumental Reading of A	B	C	D	Mean.		Names.
1831	Inches.	°	°	° ′ ″	″	″	″	″		
January 21				20 41 32,6	32,4	47,2	22,5	33,7		* Camelopardi
				96 15 40,0	37,5	59,0	25,5	40,5		α Monocerotis
				107 54 19,8	15,6	35,8	58,6	17,4		β Canis Major
				142 36 35,2	32,0	47,0	13,9	32,0		α Argo Navis
	30,132	72,6	68,3	22 18 45,0	47,5	5,4	22,2	45,0		42 Camelopardi
				31 25 5,0	4,8	16,5	48,6	3,7		e Lyncis
				111 51 4,5	0,2	15,8	44,6	1 3		θ Canis Major
				69 13 37,2	36,0	50,8	21,1	36,3		ζ Geminor
	30,130	71,8	67,0	116 9 15,5	12,2	29,5	56,2	13,3		δ Canis Major
				73 11 54,2	51,0	11,3	33,5	52,5		λ Geminor
				61 54 50,5	48,6	7,2	40,4	51,7		60 Geminor
	30,128	70,9	66,9	57 47 25,3	22,0	40,2	9,5	24,2		α Geminor
				84 22 57,5	54,2	8,2	45,6	56,4		α Canis Min
	30,126	72,0	66,3	118 34 38,1	34,2	49,3	17,3	34,7		3 Argus

Selecting those Stars which are situated within the prescribed limits and whose places are given in the Greenwich Catalogue we have

Names.	N.P.D.	Refraction.	4 Equation.	N.P.D. Jan. 1, 1831 + I.	Greenwich Catalogue reduced by Atkinson's Refraction.	Index Error No. 1.	Madras Catalogue Jan. 1, 1831 Atkinson's Refraction.	Index Error No. 2.
1831, Jan. 21.	° ′ ″	″	″	° ′ ″	° ′ ″	′ ″	° ′ ″	′ ″
α Arietis.....	67 22 29,6	— 9,33	— 1,76	67 22 18,51	67 20 26,17	* 1 52,34	67 20 24,86	* 1 53,65
μ Ceti.....	80 38 17,6	+ 3,52	— 7,54	80 38 13,58	80 36 14,43	1 59,15	80 36 17,64	1 55,91
α Ceti.....	86 36 36,8	+ 9,39	— 10,06	86 36 36,13	86 34 42,30	1 53,83	86 34 40,10	1 56,03
ζ Arietis.....	69 37 24,4	— 7,13	— 4,54	69 37 12,73	69 35 15,60	1 57,13	69 35 16,46	1 56,27
α Persei.....	40 47 27,9	— 40,55	+ 4,16	40 46 51,51	40 44 52,31	1 59,20	40 44 54,51	1 57,00
ξ Tauri.....	80 53 45,5	+ 3,80	— 8,68	80 53 40,62	80 51 42,75	1 57,87	80 51 44,84	1 55,78
e Persei.....	50 31 39,1	— 27,62	— 0,03	50 31 11,45	50 29 11,65	1 59,80	50 29 13,49	1 57,96
α Tauri.....	73 52 22,6	— 3,00	— 8,07	73 52 11,53	73 50 15,77	1 55,75	73 50 13,10	1 58,43
Camelopardi	24 0 33,4	— 1 13,60	+ 3.71	23 59 23,41	23 57 29,19	1 54,22	23 57 25,17	1 58,24
ι Tauri.....	68 41 41,6	— 8,08	— 7,33	68 41 26,19	68 39 33,38	1 52,81	68 39 29,03	1 57,16
α Orionis....	82 40 55,2	+ 5,58	— 11,34	82 39 49,44	82 37 54,90	1 54,54	82 37 53,49	1 55,95
H Geminorum.	66 46 22,8	— 10,03	— 8,40	66 46 4,37	66 44 9,27	1 55,10	66 44 8,14	1 56,23
ζ Geminorum.	69 13 36,3	— 7,58	— 9,90	69 13 18,82	69 11 22,69	1 56,13	69 11 22,36	1 56,46
λ Geminorum.	73 11 52,5	— 3,65	— 10,45	73 11 38,40	73 9 43,66	1 54,74	73 9 38,80	1 59,60
60 Geminorum	61 54 51,7	— 15,03	— 9,58	61 54 27,09	61 52 26,41	2 0,68	61 52 28,47	1 58,62
α Geminorum.	57 47 24,2	— 19 45	— 9,41	57 46 55,34	57 44 57,06	1 58,28	57 44 57,08	1 58,26
α Canis Minor	84 22 56,4	+ 7,27	— 10,88	84 22 52,79	84 20 54,24	1 58,55	84 20 55,45	1 57,74
					Mean of 16 =	1 56,76	——	1 57,23

The large differences between the results of column 7 (entitled "Index error No. 1,") can only be accounted for, by supposing errors in the observations, in the divisions of the Instrument, or in the Greenwich determination of the N.P.D. the magnitude of the error of observation can best be determined by consulting

* This is omitted in taking the mean.

column 9, "Index error No. 2," whence it appears that the mean error of each observation is 1″,03 and the largest deviation from the mean = 2″,37: these errors are not larger than what may reasonably be expected, since errors to this amount occur with the Greenwich observations; hence the disagreement in question can only be explained by supposing errors of division in the Madras Mural Circle, or discrepancies in the N.P.D. assumed from the Greenwich Catalogue; to which of these however, the disagreement is attributable, I am at present unable to decide.

In the reduction of the observations, I have of necessity in the first instance been obliged to use Index error No. 1, but the difference which would arise from the use of No. 2, is so small that I have not thought it necessary to recompute them.

We will now compute the Index error from the observations by Reflection; assuming the latitude as determined by Mr. Goldingham 13° 4′ 9″ (which agrees very nearly with my own determination); putting D for the direct vision observation, R the observation by Reflection; I, the Index error; A the Altitude reckoned from the South horizon, we have

$$D = P + I \text{ and } R = P + 2A + I$$

$$\text{whence } \frac{D+R}{2} = P + A + I = P + 180^\circ - L - P + I$$

$$\therefore I = \frac{D+R}{2} - 176^\circ\ 55'\ 51''$$

applying this in the case of the above observations we have

		$\frac{D+R}{2}$	I
	° ′ ″	° ′ ″	′ ″
η Eridani.....	R 234 19 17,4 / D 99 36 22,3	166 57 49,85	— 1 58,85
ε Eridani.....	R 233 51 37,0 / D 100 3 58,6	47,80	— 1 56,80
π Eridani.....	R 231 16 40,4 / D 102 38 57,1	48,75	— 1 57,75
ε Persei.....	R 283 23 56,4 / D 50 31 39,1	47,75	— 1 56,75
54 Eridani.....	R 223 53 48,8 / D 110 1 47,8	48,30	— 1 57,30
ω Aurigæ.....	R 281 29 42,6 / D 52 25 52,6	47,60	— 1 56,60
		Mean of 6 =	— 1 57,34

The near agreement of the result from reflection observations, with No. 1 and 2, on this and other occasions, speaks in favor of the Madras Mural Circle, but from the few observations which have been made in this way, this testimony is necessarily but a slight one I have not been able to come to any certain conclusion on the subject.

INDEX ERROR OF THE MADRAS MURAL CIRCLE FOR THE YEAR 1831.

Date.	No. of Observations.	Index Error No. 1.	Index Error No. 2.	Remarks.
1831		*m. s.*	*m. s.*	
January 1	15	— 1 53,74	— 1 52,80	
2	20	1 52,74	1 53,19	
3	15	1 52,25	1 52,51	
4	8	1 52,14	1 52,92	
5	21	1 52,03	1 52,36	
6	6	1 52,90	1 52,87	
7	7	1 53,31	1 53,17	
8	15	1 53,99	1 54,52	
9, 10	12	1 55,31	1 55,04	
11, 12	12	1 54,85	1 54,97	
13	9	1 54,80	1 54,59	
14	10	1 54,92	1 54,84	
15	13	1 55,08	1 54,67	
16, 17	19	1 55,12	1 56,12	
18	17	1 54,69	1 55,08	
19	18	1 56,16	1 56,46	
20	9	1 56,38	1 56,04	
21	16	1 56,76	1 51,23	
22	15	1 56,49	1 56,97	
23, 24	11	1 45,64	1 45,70	This change is quite unaccountable.
25	14	1 46,23	1 45,81	
26	14	1 45,68	1 45,54	
27	9	1 44,49	1 45,53	
28	14	1 44,90	1 45,04	
29	29	1 45,48	1 45,60	
30	9	1 46,75	1 46,44	
31	13	1 45,94	1 45,76	
February 1	10	1 45,85	1 45,77	
2	10	1 45,76	1 46,47	
3, 4	13	1 46,73	1 47,29	
5, 6	18	1 48,32	1 47,95	
7, 8	16	1 47,51	1 46,58	
9, 10	24	1 46,86	1 46,80	
11, 12	11	1 47,25	1 46,96	
13, 14	16	1 46,27	1 47,14	
15, 16	15	1 46,59	1 46,50	
17, 18	11	1 47,07	1 46,57	
19, 20	12	1 47,86	1 47,46	
21, 22	17	1 47,31	1 46,95	
23, 24	28	1 47,06	1 46,89	
25, 26	15	1 48,66	1 47,66	
27, 28	19	1 48,23	1 48,03	
Mar. 1, 2	23	1 47,64	1 47,49	
3, 4	34	1 46,85	1 46,83	
5, 6	48	1 47,26	1 47,67	
7, 8	31	1 46,96	1 46,98	
9, 10	27	1 47,35	1 47,23	
11, 12	31	1 48,25	1 47,76	
13, 14	31	1 47,41	1 47,14	
15, 16	29	1 46,75	1 46,42	
17	5	1 45,73	1 45,72	

Date.	No. of Observations.	Index Error No. 1.	Index Error No. 2.	Remarks.
1831		*m. s.*	*m. s.*	
March 17	4	— 2 25,73	— 1 24,67	Found the horizontal wire broken, the micrometer wire was used on this day.
18	10	2 2,92	2 1,96	
18	6	2 21,71	2 21,55	Put in a new wire.
19, 20	25	2 25,37	1 25,05	The horizontal wire was not so uniform as I could wish, I replaced it with a better one.
21, 22	19	1 15,50	1 15,36	
23, 24	26	1 17,36	1 17,04	
25, 26	24	1 17,13	1 16,87	
27, 28	25	1 17,28	1 16,57	
29, 30	23	1 16,93	1 16,57	
31 Apr. 1	18	1 17,44	1 16,76	
2, 3	19	1 16,70	1 16,60	
4, 5	20	1 17,08	1 16,78	
6, 7	14	1 16,35	1 16,67	
9, 10	15	1 18,10	1 17,41	
11, 12	19	1 11,10	1 10,82	
13, 14	19	1 10,28	1 10,21	
15, 18	15	1 10,03	1 10,52	
18, 22	16	1 5,91	1 5,00	
23, 24	9	1 5,66	1 4,38	
25, 26	14	1 4,13	1 3,80	
27, 30	19	1 1,27	1 0,89	
May 1, 3	13	1 0,22	0 59,97	
4, 5	12	1 0,24	1 0,01	
6, 7	11	0 55,22	0 55,04	
8, 9	19	0 57,44	0 57,37	
10, 12	16	0 57,10	0 56,52	
13, 15	13	0 57,57	0 56,95	
16, 17	9	0 46,29	0 46,55	Alteration unaccountable.
18, 21	14	0 44,89	0 43,82	
22, 24	12	0 40,42	0 41,51	
25, 26	10	0 39,01	0 39,36	The circle on this day moved very stiffly which accounts for this sudden change; it originated in the clamp situated between B and D.
27, 28	8	1 10,62	1 10,41	
29, 30	10	1 12,05	1 11,64	
31	13	1 11,37	1 11,93	
June 1, 3	21	1 10,25	1 11,25	
4, 6	35	1 10,72	1 10,91	
7, 13	22	1 12,03	1 11,98	
15, 20	17	1 15,99	1 16,36	
21, 27	12	1 17,41	1 17,60	
28	6	1 16,79	1 17,38	
29, 30	10	1 10,01	1 9,71	The horizontal wire appeared bent, I removed it and introduced silk lines.
July 1, 3	7	1 8,26	1 8,83	
5, 7	11	3 11,14	3 10,04	
9, 12	31	3 10,85	3 10,58	
13, 15	10	3 10,01	3 10,66	
16, 17	15	3 4,87	3 4,70	
22	2	3 3,70	3 3,27	

Date.	No. of Observations.	Index Error No. 1.	Index Error No. 2.	Remarks.
1831		*m. s.*	*m. s.*	
July 24, 26	15	— 3 14,30	— 3 15,20	
28, 31	19	3 15,12	3 15,61	
Aug. 1, 9	20	3 15,13	3 15,93	
10, 11	27	3 15,67	3 16,38	
12, 13	8	3 16,66	3 16,78	
20, 22	6	3 15,68	3 16,43	
23, 24	23	3 15,75	3 15,51	
25, 27	22	3 15,96	3 15,55	
28, 29	32	3 16,04	3 15,36	
30, 31	17	3 14,71	3 14,90	
Sept. 1, 2	21	3 13,10	3 13,24	
3, 4	17	3 12,62	3 13,27	
7, 13	13	3 10,19	3 10,61	
14	11	3 10,26	3 10,75	
15	13	3 10,48	3 10,57	
16, 21	22	3 10,27	3 10,24	
22, 27	17	3 10,72	3 11,05	
28, 30	23	3 3,16	3 2,59	
Oct. 1, 3	28	3 3,87	3 2,69	
1831		*m. s.*	*m. s.*	
Oct. 4, 5	13	— 3 0,30	— 3 0,20	
6, 12	21	3 1,50	3 1,88	
14, 21	21	3 0,52	3 0,68	
22, 23	21	3 2,04	3 1,97	
24, 29	23	2 2,26	3 2,06	
30, 31	26	3 1,62	3 2,18	
Nov. 1	15	3 1,78	3 1,51	
2, 3	25	3 2,59	3 2,15	
4, 5	13	3 2,37	3 2,64	
6, 8	17	3 3,49	3 2,97	
9, 19	20	3 2,28	3 2,38	
21, 30	18	3 3,18	3 3,66	
Dec. 1, 6	8	3 4,86	3 4,24	
7, 9	13	3 5,11	3 6,05	
10, 15	10	3 7,89	3 8,46	
16, 23	18	3 7,98	3 8,13	
24, 25	9	3 9,18	3 9,29	
28, 30	9	3 0,85	3 0,74	Unaccountable.*

The column of Index error No. 1, is as I have before stated that which has been employed in reducing the places of the Stars, but in the case of the Sun, Planets, and Moon, when the *limb* is observed, (the *edge* of the wire being made a tangent to the limb) it is the Index error of the North or South edge (according to which limb is observed) which should be employed; the simplest way to apply the correction is to increase the semi-diameter of the object observed by half the thickness of the wire, whereby the consideration of which edge has been observed is evaded: I estimate the diameter of the wire first employed at 2″,42; that put in on the 20th March at 2″,5, and the silk line put in on the 5th July at 2″,1, I have employed throughout 1″,2 for the semi-diameter.

* With reference to this remark I am under the painful obligation to observe that unless the cause of alteration happened when using the Instrument *myself* or superintending its use, I stand no chance of being informed of it.

RESULTS DERIVED FROM THE OBSERVATIONS MADE WITH THE TRANSIT INSTRUMENT AND MURAL CIRCLE IN THE YEAR 1831.

In the first place we will examine the observations of the Sun.

The observation of the Sun's first and second limb over the five wires of the Transit Instrument affords a ready means of determining the diameter, for we have Sun's Apparent Semi-d. $= \left(\frac{\odot\ 2\ L - \odot\ 1\ L}{30}\right)\left(\frac{a^1 - a}{48h.}\right)$ *sin.* N.P.D.

a^1 and a are the Right Ascensions of the Sun at the noon preceding, and following the day of observation, as found in the Nautical Almanac; from this the mean semi-diameter or the semi-diameter seen from the Earth when at its mean distance has been found, by dividing the above by the distance $\odot - \oplus$, whose logarithm is given in the Nautical Almanac; thus we have

Interval in time occupied by the Sun's diameter in passing the Meridian applied to the determination of its Mean semi-diameter.

1831		⊙ 2 L — ⊙ 1 L.	Reduced Apparent Semi.	Mean Semi-diameter ⊖ Dist. 1.	1831		⊙ 2 L — ⊙ 1 L.	Reduced Apparent Semi.	Mean Semi-diameter ⊖ Dist. 1.
		m. *s.*	*m.* *s.*	*m.* *s.*			*m.* *s.*	*m.* *s.*	*m.* *s.*
February	19	2 12,62	16 12,0	16 1,1	March	28	2 8,98	16 4,7	16 3,4
	21	2 12,72	16 15,0	16 4,6		30	2 9,12	16 3,7	16 3,2
	22	2 14,08	16 26,3	16 16,0	April	1	2 9,08	16 2,9	16 2,8
	23	2 12,28	16 14,1	16 4,2		2	2 9,12	16 7,8	16 8,1
	24	2 11,82	16 11,8	16 2,1		3	2 9,84	16 8,1	16 8,6
	25	2 11,22	16 8,4	15 59,0		5	2 9,94	16 7,3	16 8,3
	27	2 11,04	16 9,0	16 0,1		6	2 10,00	16 2,0	16 3,3
March	3	2 10,86	16 11,4	16 3,6		8	2 9,38	16 3,8	16 5,9
	4	2 10,92	16 12,6	16 5,1		10	2 9,84	15 58,9	16 1,1
	5	2 10,70	16 11,6	16 4,4		13	2 9,38	16 0,9	16 4,2
	8	2 10,40	16 11,5	16 5,1		15	2 10,02	16 0,9	16 4,9
	10	2 9,80	16 8,0	16 2,1		16	2 10,28	15 59,9	16 3,9
	11	2 9,62	16 7,1	16 1,5		17	2 9,36	15 52,0	15 56,3
	12	2 9,50	16 6,7	16 1,3		18	2 7,84	15 39,8	15 44,3
	13	2 9,12	16 4,3	15 59,1		19	2 10,50	15 58,3	16 3,1
	14	2 9,50	16 7,5	16 2,6		20	2 10,66	15 58,3	16 3,4
	15	2 9,00	16 4,0	15 59,4		23	2 10,38	15 52,7	15 58,5
	17	2 9,12	16 5,4	16 1,4		25	2 8,88	15 39,2	15 45,5
	19	2 8,96	16 4,5	16 0,9		26	2 8,36	15 34,2	15 40,7
	20	2 9,00	16 4,9	16 1,6		27	2 10,24	15 46,7	15 53,4
	22	2 8,98	16 4,7	16 1,9		28	2 11,78	15 53,6	15 53,2
	24	2 9,58	16 9,1	16 6,7		29	2 11,36	15 52,2	15 59,5
	25	2 9,10	16 5,3	16 3,2		30	2 11,56	15 52,3	15 59,9
	26	2 9,18	16 5,7	16 3,9	May	1	2 9,72	15 37,5	15 45,1
	27	2 8,76	16 2,3	16 0,7		2	2 11,74	15 50,7	15 58,7

1831		⊙ 2 L — ⊙ 1 L.	Reduced Apparent Semi.	Mean Semi-diameter ⊖ Dist. 1.
		m. *s.*	*m.* *s.*	*m.* *s.*
May	5	2 12,78	15 54,1	16 2,9
	6	2 11,52	15 43,6	15 52,6
	7	2 13,32	15 55,2	16 4,5
	11	2 14,02	15 54,6	16 4,8
	12	2 12,24	15 40,5	15 50,7
	13	2 12,16	15 38,5	15 48,8
	14	2 13,64	15 47,8	15 58,5
	15	2 15,00	15 56,1	16 7,0
	17	2 15,26	15 55,3	16 6,6
	18	2 13,70	15 42,9	15 54,3
	19	2 14,72	15 48,8	16 0,5
	20	2 14,88	15 48,6	16 0,5
	21	2 14,94	15 47,8	15 59,8
	22	2 15,66	15 51,4	16 3,6
	23	2 15,38	15 58,3	16 0,8
	24	2 15,94	15 51,2	16 3,6
	25	2 15,46	15 46,6	15 59,3
	26	2 15,40	15 45,1	15 57,8
	27	2 16,22	15 49,7	16 2,7
	29	2 15,64	15 43,5	15 56,7
	30	2 16,62	15 49,4	16 2,7
	31	2 16,30	15 46,1	15 59,6
June	1	2 16,34	15 45,3	15 59,0
	2	2 16,66	15 46,6	16 0,4
	3	2 16,50	15 44,6	15 58,5
	4	2 16,60	15 44,5	15 58,5
	5	2 17,14	15 47,4	16 1,7
	6	2 17,98	15 52,4	16 6,9
	7	2 17,26	15 46,7	16 1,2
	8	2 17,10	15 45,0	15 59,5
	9	2 17,54	15 47,3	15 58,5
	10	2 17,34	15 45,4	16 0,1
	11	2 17,66	15 47,0	16 1,9
	12	2 17,62	15 46,3	16 1,2
	13	2 17,40	15 44,3	15 59,3
	14	2 17,70	15 45,9	16 1,0
	16	2 17,94	15 46,9	16 2,1
	19	2 17,54	15 46,6	15 58,8
	21	2 17,16	15 40,7	15 56,0
	22	2 17,78	15 44,9	16 3,5
	23	2 18,12	15 47,3	16 2,9
	24	2 17,76	15 44,9	16 0,6
	25	2 17,94	15 46,2	16 1,9
	26	2 18,04	15 47,1	16 2,9
	27	2 17,64	15 44,6	16 0,4
	28	2 18,12	15 48,2	16 4,0
	29	2 17,98	15 47,5	16 3,4
	30	2 17,58	15 45,1	16 1,0
July	1	2 17,82	15 47,2	16 3,1
	2	2 17,96	15 48,6	16 4,6
	3	2 17,20	15 43,8	15 59,7
	4	2 17,64	15 47,5	16 3,4
	5	2 17,18	15 44,9	16 0,8
	6	2 17,10	15 44,9	16 0,8
	7	2 16,96	15 44,6	16 0,5
	8	2 16,94	15 45,3	16 1,1
July	11	2 16,58	15 45,2	16 1,0
	14	2 16,50	15 47,4	16 3,3
	17	2 15,62	15 44,4	15 59,8
	21	2 14,56	15 41,4	15 56,5
	25	2 14,28	15 44,3	15 58,9
	27	2 14,02	15 45,0	15 59,5
	29	2 13,88	15 44,7	16 0,9
	30	2 13,74	15 47,0	16 1,1
August	4	2 12,66	15 41,6	15 55,0
	6	2 12,34	15 46,6	15 59,9
	7	2 12,32	15 47,9	16 1,0
	8	2 12,20	15 48,4	16 1,3
	11	2 11,14	15 44,8	15 57,2
	13	2 11,06	15 46,9	15 59,0
	14	2 11,22	15 49,4	16 1,4
	18	2 10,62	15 50,2	16 1,4
	20	2 10,34	15 50,6	16 1,5
	22	2 10,10	15 51,3	16 1,8
	23	2 9,82	15 52,4	16 0,6
	24	2 9,72	15 52,9	16 0,8
	25	2 9,64	15 52,4	16 1,2
	27	2 9,60	15 53,3	16 2,7
	31	2 8,86	15 55,8	16 0,3
September	1	2 8,84	15 56,8	16 1,1
	5	2 8,28	15 55,0	15 59,3
	7	2 8,18	15 52,7	15 59,6
	8	2 8,18	15 53,4	16 0,0
	11	2 8,22	15 55,5	16 1,4
	13	2 8,18	15 56,2	16 1,6
	14	2 7,98	15 55,1	16 0,3
	15	2 7,58	15 52,5	15 57,4
	16	2 8,10	15 56,8	16 1,3
	17	2 7,74	15 54,4	15 58,6
	19	2 8,04	15 57,1	16 0,8
	21	2 7,96	15 56,9	16 0,1
	22	2 8,16	15 58,4	16 1,4
	24	2 7,80	15 55,8	15 58,1
	25	2 8,14	15 58,3	16 0,4
	26	2 8,02	15 57,3	15 59,1
	27	2 8,50	16 0,8	16 2,3
	28	2 8,04	15 57,1	15 58,4
	29	2 8,66	16 1,6	16 2,6
October	4	2 8,98	16 2,2	16 1,9
	5	2 8,92	16 1,3	16 0,7
	6	2 9,36	16 4,0	16 3,1
	7	2 9,28	16 3,1	16 2,0
	8	2 9,60	16 4,6	16 3,2
	13	2 10,02	16 4,0	16 1,2
	14	2 10,08	16 3,6	16 0,5
	15	2 10,70	16 7,4	16 4,0
	17	2 10,68	16 5,3	16 1,4
	22	2 11,62	16 6,9	16 1,6
	23	2 11,40	16 4,1	15 58,6
	31	2 13,56	16 9,7	16 2,0
November	1	2 13,38	16 6,3	15 59,0
	2	2 14,26	16 11,9	16 3,8

1831	⊙ 2 L — ⊙ 1 L.	Reduced Apparent Semi.	Mean Semi-diameter ⊖ Dist. 1.	1831	⊙ 2 L — ⊙ 1 L.	Reduced Apparent Semi.	Mean Semi-diameter ⊖ Dist. 1.
	m. *s.*	*m.* *s.*	*m.* *s.*		*m.* *s.*	*m.* *s.*	*m.* *s.*
November 3	2 14,02	16 8,7	16 0,3	December 10	2 21,96	16 17,9	16 2,7
8	2 14,38	16 4,0	15 54,6	12	2 22,00	16 16,8	16 1,4
9	2 15,40	16 9,6	16 0,0	13	2 22,10	16 17,0	16 1,5
10	2 15,88	16 11,7	16 1,7	14	2 22,24	16 17,5	16 1,9
12	2 16,28	16 11,6	16 1,1	17	2 22,42	16 17,5	16 1,7
13	2 16,24	16 9,9	15 59,2	20	2 22,42	16 16,9	16 0,1
18	2 17,66	16 13,0	16 0,4	21	2 22,34	16 16,0	16 0,0
27	2 19,54	16 14,2	16 0,8	22	2 22,80	16 19,3	16 3,0
December 1	2 20,48	16 15,8	16 1,7	26	2 22,50	16 17,7	16 1,3
2	2 20,84	16 17,1	16 2,9	29	2 22,12	16 15,9	15 59,5
7	2 21,14	16 14,5	15 59,7				

Mean of 184 gives for the Sun's semi-diameter when viewed at the Earth's Mean Distance..... 16′ 0″,742

Rejecting the observations between the 23d April and 2d of May which were made by an inexperienced Assistant, we get..... 16′ 0″,15

Thus much for a rough approximation, for the value here assigned can only be thus regarded from certain uncontrolable circumstances which it may be as well here to enumerate. In the first place it is a generally received opinion that all telescopes do not give the same value for the diameter of the Sun and Planets; be this as it may, in the absence of proof, probability seems strongly to favor the notion; in the next place an *irradiation* as it is called, will I apprehend be found with every observer of a nature much more serious than the above, for on comparing several hundred observations made at Greenwich with the old 8 feet transit Instrument with 3 Inches aperture I found a difference of 6 or 8 seconds between the value assigned for the Sun's diameter by different observers*; whereas on this Instrument being superceded by the present 10 feet with 5 Inches aperture, no appreciable difference resulted in the value it gave for the diameter of the Sun, when compared with that given by the old Instrument.

Again, I am aware of no observation sufficiently nice having been made whereby we are justified in assuming the Sun to be perfectly Spherical an assumption indeed which would be at variance with the received laws of

* So certainly did a change occur in the value for the Sun's diameter determined in this way, in the days of Dr. Marklyne on his engaging a new Assistant, that is no difficult matter to discover the day when a new Assistant came from this circumstance.

gravity; as the matter now stands (in consequence of the small inclination of the Solar axis to the axis oft he ecliptic) our measure is very nearly the Sun's Equatorial diameter, and being the mean diameter from three or four different observers I propose for the present (notwithstanding the imperfections to which it is liable,) for want of a better, to employ this result in any case where the Sun's diameter is required.

We will now compare the observed Right Ascension and North Polar Distance of the Sun with its place as interpolated from the Nautical Almanac.

	Observed A.R.	A.R. from Nautical Almanac.	Error of Tables.	Observed N.P.D.	N.P.D. from Nautical Almanac.	Error of Tables.
1831	h. m. s.	m. s.	s.	° m. s.	m. s.	s.
January 28				108 21 56,49	22 2,00	+ 5,5
29				108 6 13,47	6 15,00	+ 1,5
30				107 50 5,55	50 10,00	+ 4,5
February 1				107 16 53,95	17 1,00	+ 7,0
2				106 59 51,73	59 58,00	+ 6,3
3				106 42 34,20	42 38,00	+ 3,8
4				106 24 58,40	25 0,00	+ 1,6
5				106 7 1,77	7 5,00	+ 3,2
6				105 48 50,63	48 53,00	+ 2,4
7				105 30 27,28	30 25,00	— 2,3
8				105 11 38,30	11 41,00	+ 2,7
11				104 13 57,79	13 59,00	+ 1,2
12				103 54 7,91	54 16,00	+ 8,1
13				103 34 13,64	34 19,00	+ 5,4
14				103 14 4,77	14 9,00	+ 4,2
15				102 53 40,05	53 47,00	+ 6,9
16				102 33 9,32	33 12,00	+ 2,7
17				102 12 19,59	12 25,00	+ 5,4
18				101 51 21,19	51 26,00	+ 4,8
19				101 30 11,38	30 16,00	+ 4,6
20	22 11 58,48	11 58,10	— 0,38	101 8 54,14	8 55,00	+ 0,9
21	22 15 48,37	15 47,90	— 0,47	100 47 29,15	47 25,00	— 4,1
22	22 19 37,10	19 37,10	— 0,00			
23	22 23 25,62	23 25,70	+ 0,08	100 3 50,81	3 55,00	+ 4,2
24	22 27 13,78	27 13,70	— 0,08	99 41 57,63	41 55,00	— 2,6
25	22 31 1,30	31 1,10	— 0,20	99 19 40,51	19 47,00	+ 6,5
26				98 57 29,42	57 31,00	+ 1,6
27	22 38 34,89	38 34,00	— 0,89	98 35 1,51	35 7,00	+ 5,5
28				98 12 33,27	12 35,00	+ 1,7
March 2	22 49 49,81	49 49,40	— 0,41	97 27 2,25	27 10,00	+ 7,7
3	22 53 33,04	53 33,40	+ 0,36	97 4 13,18	4 18,00	+ 4,8
4	22 57 16,86	57 17,00	+ 0,14	96 41 14,55	41 21,00	+ 6,4
5	23 1 1,41	1 0,10	— 0,31	96 18 6,27	18 17,00	+ 10,7
6				95 55 2,69	55 8,00	+ 5,3
7				95 31 45,07	31 54,00	+ 8,9
8	23 12 7,40	12 7,10	— 0,30	95 8 34,53	8 35,00	+ 0,5
9	23 15 49,23	15 48,70	— 0,53	95 45 12,92	45 13,00	+ 0,1
10	23 19 30,46	19 29,80	— 0,66	94 21 38,54	21 46,00	+ 7,5
11	23 23 11,53	23 10,70	— 0,83	93 58 12,89	58 16,00	+ 3,1
12	23 26 51,98	26 51,30	— 0,68	93 34 35,62	34 44,00	+ 8,4

1831		Observed A.R.	A.R. from Nautical Almanac.	Error of Tables.	Observed N.P.D.	N.P.D. from Nautical Almanac.	Error of Tables.
		h. *m.* *s.*	*m.* *s.*	*s.*	° *m.* *s.*	*m.* *s.*	*s.*
March	13	23 30 32,11	30 31,50	— 0,61	93 11 1,71	11 8,00	+ 6,3
	14	23 34 12,31	34 11,50	— 0,81	92 47 23,76	47 31,00	+ 7,2
	15	23 37 52,15	37 51,20	— 0,95	92 23 45,89	23 51,00	+ 5,1
	16				92 0 7,81	0 10,00	+ 2,2
	17	23 45 10,01	45 9,80	— 0,21	91 36 27,07	36 29,00	+ 1,9
	18						
	19	23 52 28,23	52 27,50	— 0,73	90 48 59,36	49 4,00	+ 4,6
	20	23 56 6,47	56 6,10	— 0,37	90 25 21,09	25 22,00	+ 0,9
	21	23 59 44,70	59 44,50	— 0,20			
	22	0 3 23,67	3 22,70	— 0,97	89 37 55,28	38 0,00	+ 4,7
	23	0 7 2,15	7 0,90	— 1,25	89 14 20,76	14 21,00	+ 0,2
	24	0 10 39,89	10 38,90	— 0,99			
	25	0 14 17,28	14 16,90	— 0,38	88 27 4,51	27 8,00	+ 3,5
	26	0 17 55,70	17 54,80	— 0,90			
	27	0 21 33,42	21 32,60	— 0,82	87 39 58,84	40 3,00	+ 4,2
	28	0 25 11,25	25 10,50	— 0,75	87 16 28,75	16 35,00	+ 6,2
	29				86 53 8,04	53 11,00	+ 3,0
	30	0 32 27,00	32 26,20	— 0,80	86 29 41,22	29 50,00	+ 8,0
	31	0 36 5,06	36 4,20	— 0,86	86 6 31,75	6 32,00	+ 0,3
April	1	0 39 43,24	39 42,30	— 0,94	85 43 13,33	43 19,00	+ 5,7
	2	0 43 21,00	43 20,40	— 0,60	85 20 8,81	20 11,00	+ 2,2
	3				84 57 2,59	57 8,00	+ 5,4
	5	0 54 16,60	54 15,80	— 0,80	84 11 15,69	11 16,00	+ 0,3
	6	0 57 55,17	57 54,50	— 0,67	83 48 23,03	48 30,00	+ 7,0
	7				83 25 44,47	25 50,00	+ 5,5
	8	1 5 13,61	5 12,30	— 0,31	83 3 8,78	3 16,00	+ 7,2
	10	1 12 32,80	12 31,90	— 0,90	82 18 22,10	18 30,00	+ 7,9
	11				81 56 16,78	56 18,00	+ 1,2
	12				81 34 4,58	34 14,00	+ 9,4
	13	1 23 33,51	23 33,00	— 0,51	81 12 19,29	12 18,00	— 1,3
	14				80 50 30,31	50 32,00	+ 1,7
	15	1 30 55,73	30 55,10	— 0,63	80 28 56,48	28 55,00	— 1,5
	16	1 34 37,18	34 36,50	— 0,68	80 7 29,46	7 27,00	— 2,5
	17	1 38 19,17	38 18,30	— 0,87			
	18	1 42 0,58	42 0,50	— 0,08	79 24 58,24	25 1,00	+ 2,8
	19	1 45 43,41	45 43,20	— 0,21	79 4 0,33	4 4,00	+ 3,7
	20	1 49 26,35	49 26,20	— 0,15	78 43 11,35	43 17,00	+ 5,7
	21				78 22 33,45	22 41,00	+ 7,5
	22				78 2 12,26	2 17,00	+ 4,7
	23	1 0 38,07	0 37,60	— 0,47	77 41 56,56	42 5,00	+ 8,4
	24				77 21 59,27	22 5,00	+ 5,7
	25	1 8 7,57	8 7,30	— 0,27	77 2 16,12	2 18,00	+ 1,9
	26				76 42 35,98	42 44,00	+ 8,0
	27				75 23 21,54	23 23,00	+ 1,5
	28	1 19 26,18	19 25,50	— 0,68	76 4 10,13	4 14,00	+ 3,9
	29	1 23 13,55	23 12,60	— 0,95	75 45 18,90	45 19,00	+ 0,1
	30	1 27 1,21	27 0,20	— 1,01	75 26 34,41	26 38,00	+ 3,6
May	1	1 30 49,14	30 48,20	— 0,94	75 8 8,19	8 11,00	+ 2,8
	2	1 34 37,37	34 36,90	— 0,47			
	3				74 32 1,03	32 4,00	+ 3,0
	4	1 42 16,90	42 16,00	— 0,90	74 14 16,48	14 22,00	+ 5,5
	5	1 46 7,67	46 6,40	— 1,27	73 56 52,43	56 56,00	+ 3,6
	6	1 49 58,55	49 57,30	— 1,25	73 39 44,54	39 45,00	+ 0,5
	7	1 53 49,87	53 48,90	— 0,97	73 22 50,74	22 52,00	+ 1,3
	9				72 49 46,20	49 53,00	+ 6,8

1831		Observed A.R.			A.R. from Nautical Almanac.		Error of Tables.	Observed N.P.D.			N.P.D. from Nautical Almanac.		Error of Tables.
		h.	*m.*	*s.*	*m.*	*s.*	*s.*	°	*m.*	*s.*	*m.*	*s.*	*s.*
May	10							72	33	50,36	33	49,00	— 1,4
	11	3	9	21,68	9	21,10	— 0,58	72	18	0,60	18	3,00	+ 2,4
	12	3	13	15,96	13	15,60	— 0,36	72	2	37,19	2	34,00	— 3,2
	13	3	17	10,91	17	10,60	— 0,31	71	47	20,31	47	23,00	+ 2,7
	14	3	21	6,91	21	6,30	— 0,61	71	32	27,67	32	31,00	+ 3,3
	15	3	25	3,37	25	2,50	— 0,87	71	17	54,16	17	58,00	+ 3,8
	16	3	28	59,39	28	59,20	— 0,19	71	3	41,76	3	43,00	+ 1,2
	17	3	32	56,79	32	56,50	— 0,29	70	49	42,30	49	47,00	+ 4,7
	18	3	36	54,70	36	54,30	— 0,40	70	36	13,04	36	11,00	— 2,0
	19	3	40	53,35	40	52,80	— 0,55	70	22	51,05	22	54,00	+ 2,9
	20	3	44	52,38	44	51,70	— 0,68	70	10	3,26	9	58,00	— 5,3
	21	3	48	51,86	48	51,20	— 0,66	69	57	25,58	57	23,00	— 2,6
	22	3	52	51,67	52	51,30	— 0,37	69	45	7,72	45	8,00	+ 0,3
	23	3	56	52,36	56	51,70	— 0,66	69	33	10,88	33	13,00	+ 2,1
	24	4	0	53,47	0	52,80	— 0,67	69	21	38,75	21	39,00	+ 0,2
	25	4	4	54,99	4	54,30	— 0,69	69	10	24,61	10	26,00	+ 1,4
	26	4	8	56,58	8	56,30	— 0,28	68	59	31,15	59	35,00	+ 3,8
	27	4	12	59,23	12	58,80	— 0,43	68	48	59,83	49	5,00	+ 5,2
	29	4	21	5,88	21	5,30	— 0,58						
	30	4	25	10,17	25	9,30	— 0,87	68	19	41,32	19	49,00	+ 7,7
	31	4	29	14,68	29	13,80	— 0,88						
June	1	4	33	19,27	33	18,60	— 0,67	68	2	12,49	2	10,00	— 2,5
	2	4	37	24,71	37	24,10	— 0,61	67	53	50,07	53	55,00	+ 4,9
	3							67	45	57,42	46	2,00	+ 4,6
	4	4	45	36,71	45	36,00	— 0,71	67	38	27,39	38	33,00	+ 5,6
	5	4	49	43,01	49	42,50	— 0,51	67	31	31,87	31	28,00	— 3,9
	6	4	53	49,82	53	49,30	— 0,52	67	24	44,60	24	45,00	+ 0,4
	7	4	57	57,41	57	56,60	— 0,81	67	19	27,93	18	26,00	— 1,9
	8	5	2	5,04	2	4,20	— 0,84	67	12	27,90	12	32,00	+ 4,1
	9	5	6	13,05	6	12,10	— 0,95	67	7	2,31	7	1,00	— 1,3
	10	5	10	21,24	10	20,40	— 0,84	67	1	55,96	1	55,00	— 1,0
	11	5	14	29,35	14	28,90	— 0,45	66	57	14,54	57	12,00	— 2,5
	12	5	18	37,90	18	37,50	— 0,40	66	52	57,91	52	53,00	— 4,9
	13	5	22	47,02	22	46,30	— 0,72	66	49	4,12	49	0,00	— 4,1
	14	5	26	56,03	26	55,30	— 0,73						
	16	5	35	14,32	35	13,80	— 0,52	66	39	49,73	39	46,00	— 3,7
	19	5	47	42,23	47	42,10	— 0,13	66	34	9,04	34	15,00	+ 6,0
	21	5	56	1,77	56	1,10	— 0,67	66	32	38,75	32	38,00	— 0,7
	22	6	0	11,02	0	10,60	— 0,42	66	32	30,67	32	26,00	— 4,7
	23	6	4	20,67	4	20,10	— 0,47	66	32	37,94	32	40,00	+ 2,1
	24							66	33	20,66	33	18,00	— 2,7
	25	6	12	39,22	12	38,80	— 0,42	66	34	24,83	34	21,00	— 3,8
	26	6	16	48,66	16	48,00	— 0,66	66	35	50,95	35	49,00	— 1,9
	27	6	20	57,79	20	57,00	— 0,79	66	37	48,33	37	42,00	— 6,3
	28	6	25	6,83	25	6,00	— 0,83	66	39	58,57	39	59,00	+ 0,4
	29	6	29	15,57	29	14,90	— 0,67	66	42	43,86	42	40,00	— 3,9
	30	6	33	24,45	33	23,50	— 0,95	66	45	44,26	45	47,00	+ 1,2
July	1	6	37	32,97	37	32,00	— 0,97	66	49	20,65	49	16,00	+ 4,6
	2	6	41	40,99	41	40,20	— 0,79	66	53	16,37	53	11,00	— 5,4
	3	6	45	48,40	45	48,20	— 0,20	66	57	34,25	57	30,00	— 4,2
	4	6	49	56,93	49	55,90	— 1,03						
	5	6	54	4,45	54	3,40	— 1,05						
	6	6	58	11,47	58	10,60	— 0,87	67	12	55,05	12	52,00	— 3,0
	7	7	2	18,45	2	17,60	— 0,85	67	18	48,93	18	48,00	— 0,9
	8	7	6	24,67	6	24,20	— 0,47	67	25	8,24	25	7,00	— 1,2
	11	7	18	41,63	18	41,40	— 0,23	67	46	22,42	46	23,00	+ 0,6

1831		Observed A.R. h.	m.	s.	A.R. from Nautical Almanac. m.	s.	Error of Tables. s.	Observed N.P.D. °	m.	s.	N.P.D. from Nautical Almanac. m.	s.	Error of Tables. s.
July	14	7	30	55,52	30	54,70	— 0,82	68	11	6,01	11	7,00	+ 1,0
	17	7	43	4,45	43	3,60	— 0,85	68	39	10,43	39	11,00	+ 0,6
	21	7	59	8,92	59	7,90	— 1,02	69	21	45,35	21	41,00	— 4,4
	25	8	15	3,90	15	3,20	— 0,70	70	4	48,04	9	42,00	— 6,0
	27	8	22	58,16	22	57,30	— 0,86	70	35	49,23	35	43,00	— 6,2
	29	8	31	50,44	30	49,20	— 1,24	71	3	7,19	3	1,00	— 6,2
	30	8	35	45,24	34	44,30	— 0,94	71	17	12,01	17	8,00	— 4,0
	31	8	39	39,65	38	38,70	— 0,95	71	31	34,79	31	34,00	— 0,8
August	3	8	50	19,49	50	18,50	— 0,99	72	16	44,58	16	40,00	— 4,6
	4	8	54	11,51	54	10,60	— 0,91	72	32	22,80	32	17,00	— 5,8
	5	8	58	3,07	58	2,10	— 0,97	72	48	16,31	48	12,00	— 4,3
	6	9	1	54,25	1	53,10	— 1,15	73	4	25,81	4	24,00	— 1,8
	7	9	5	44,19	5	43,40	— 0,79	73	20	49,07	20	52,00	+ 2,9
	8	9	9	34,29	9	33,20	— 1,09	73	37	41,20	37	36,00	— 5,2
	11	9	20	59,70	20	59,00	— 0,70	74	29	23,73	29	21,00	— 2,7
	12	9	24	46,96	24	46,40	— 0,56	74	47	11,87	47	7,00	— 4,9
	13	9	28	34,14	28	33,20	— 0,94	75	5	11,77	5	7,00	— 4,8
	14	9	32	19,98	32	19,50	— 0,48	75	23		23	21,00	
	18	9	47	20,03	47	19,00	— 1,03	76	38	31,71	38	34,00	+ 2,3
	20	9	54	46,38	54	45,60	— 0,78	77	17	27,79	17	27,00	— 0,8
	22	10	2	10,65	2	10,10	— 0,55	77	57	7,73	57	10,00	+ 2,3
	23	10	5	52,00	5	51,70	— 0,30	78	17	15,76	17	18,00	+ 2,2
	24	10	9	33,32	9	32,80	— 0,52	78	37	39,65	37	37,00	— 2,6
	25	10	13	13,87	13	13,60	— 0,27	78	58	5,12	58	7,00	+ 1,9
	27	10	20	34,08	20	33,80	— 0,28	79	39	48,67	39	39,00	— 9,7
	31	10	35	10,85	35	9,90	— 0,95	81	4	43,70	4	38,00	— 5,7
Sept.	1	10	38	48,72	38	48,00	— 0,72	81	26	19,46	26	15,00	— 4,5
	5	10	53	18,77	53	18,10	— 0,67	82	54	5,57	54	7,00	+ 1,4
	7	11	0	32,21	0	31,80	— 0,41	83	38	47,30	38	45,00	— 2,3
	8	11	4	9,12	4	8,30	— 0,82	84	1	13,07	1	14,00	+ 0,9
	10	11	11	21,02	11	20,60	— 0,42	84	46	38,32	46	31,00	— 7,3
	11	11	14	56,98	14	56,40	— 0,58	85	9	24,86	9	17,00	— 7,9
	12	11	18	33,17	18	32,40	— 0,77	85	32	11,87	32	8,00	— 3,9
	13	11	22	8,57	22	8,20	— 0,37	85	55	7,08	56	3,00	— 4,1
	14	11	25	44,29	25	43,70	— 0,59	86	18	8,00	18	2,00	— 6,0
	15	11	29	19,82	29	19,20	— 0,62	86	41	5,93	41	5,00	— 0,9
	16	11	32	55,70	32	54,60	— 1,10	87	4	14,31	4	12,00	— 2,3
	17	11	36	30,82	36	29,90	— 0,92	87	27	27,62	27	23,00	— 4,6
	19							88	13	53,74	13	51,00	— 2,7
	21	11	50	52,24	50	41,30	— 0,94	89	0	32,99	0	29,00	— 4,0
	22	11	54	27,86	54	26,80	— 1,06	89	23	58,32	23	51,00	— 7,3
	24	12	1	39,09	1	38,00	— 1,09	90	10	44,58	10	38,00	— 6,6
	25	12	5	14,41	5	13,80	— 0,61	90	34	4,23	34	2,00	— 2,2
	26	12	8	50,68	8	49,70	— 0,98	90	57	30,43	57	27,00	— 3,4
	27	12	12	26,95	12	25,80	— 1,15	91	20	57,14	20	52,00	— 5,1
	28	12	16	3,20	16	2,30	— 0,90	91	44	17,17	44	16,00	— 1,2
	29	12	18	39,83	19	39,00	— 0,83	92	7	42,70	7	40,00	— 2,7
October	4	12	37	47,36	37	46,20	— 1,16	94	4	17,70	4	20,00	+ 2,3
	5	12	41	25,86	41	24,70	— 1,16	94	27	32,17	27	33,00	+ 0,8
	6	12	45	4,57	45	3,40	— 1,17	94	50	44,85	50	42,00	— 2,8
	7	12	48	43,48	48	42,60	— 0,88	95	13	56,28	13	48,00	— 8,3
	8	12	52	22,75	52	22,20	— 0,55	95	36	52,11	36	50,00	— 2,1
	12	13	7	5,70	7	4,60	— 1,10	97	8	11,00	8	12,00	+ 1,0
	13	13	10	47,47	10	46,30	— 1,17	97	30	48,88	30	48,00	— 0,9
	14	13	14	29,80	14	28,60	— 1,20	97	53	16,97	53	17,00	+ 0,0
	15	13	18	12,33	18	11,40	— 0,93	98	15	40,26	15	40,00	— 0,3

		Observed A.R.			A.R. from Nautical Almanac.		Error of Tables.	Observed N.P.D.			N.P.D. from Nautical Almanac.		Error of Tables.
1831		*h.*	*m.*	*s.*	*m.*	*s.*	*s.*	°	*m.*	*s.*	*m.*	*s.*	*s.*
October	17	13	25	39,52	25	38,50	— 1,02	99	0	3,95	0	7,00	+ 3,1
	21	13	40	40,70	40	39,70	— 1,00	100	27	22,74	27	19,00	— 3,7
	22	13	44	27,55	44	26,50	— 1,05	100	48	50,54	48	46,00	— 4,5
	23	13	48	15,10	48	14,10	— 1,00	101	10	1,26	10	2,00	+ 0,7
	25	13	55	52,39	55	51,30	— 1,09	101	52	6,20	52	4,00	— 2,2
	30	14	15	7,99	15	7,50	— 0,49	103	33	57,74	33	56,00	— 1,7
	31	14	19	1,42	19	1,00	— 0,42	103	53	39,44	53	43,00	+ 3,6
Nov.	1	14	22	56,61	22	55,40	— 1,21	104	13	16,84	13	15,00	— 1,8
	2	14	26	51,44	26	50,50	— 0,94	104	32	33,34	32	34,00	+ 0,7
	3	14	30	47,49	30	46,40	— 1,09	104	51	42,87	51	38,00	— 4,9
	8	14	50	39,43	50	38,70	— 0,73	106	23	10,39	23	16,00	+ 5,6
	9	14	54	40,09	54	39,60	— 0,49	106	40	49,01	40	47,00	— 2,0
	10	14	58	42,11	58	41,40	— 0,71	106	58	2,44	58	1,00	— 1,4
	12	15	6	48,06	6	47,30	— 0,76	107	31	37,85	31	38,00	+ 0,2
	13	15	10	51,95	10	51,60	— 0,35	107	48	6,76	47	59,00	— 7,7
	18	15	31	26,05	31	25,40	— 0,65	109	4	56,01	4	55,00	— 1,0
	19	15	35	34,74	35	34,60	— 0,14	109	19	18,39	19	19,00	+ 0,6
	20	15	39	45,55	39	44,60	— 0,95	109	33	22,84	33	21,00	— 1,8
	21	15	43	56,45	43	55,40	— 1,05	109	47	2,57	47	1,00	— 1,6
	22	15	48	8,07	48	7,20	— 0,87	110	0	22,31	0	21,00	— 1,3
	27	16	9	18,20	9	17,60	— 0,60	111	1	18,15	1	22,00	+ 3,8
	29	16	17	52,19	17	51,20	— 0,99	111	23	3,48	23	2,00	— 1,5
Dec.	1	16	26	28,15	26	27,70	— 0,45	111	43	6,28	43	7,00	+ 0,7
	2	16	30	47,72	30	47,00	— 0,72	111	52	28,75	52	32,00	+ 3,3
	3	16	35	7,18	35	6,80	— 0,38	112	1	31,69	1	32,00	+ 0,3
	4	16	39	27,74	39	27,30	— 0,44	112	10	4,13	10	6,00	+ 1,9
	5	16	43	49,14	43	48,40	— 0,74	112	18	9,56	18	15,00	+ 5,4
	6	16	48	10,47	48	10,10	— 0,37						
	7	16	52	33,00	52	32,30	— 0,70	112	33	12,14	33	12,00	— 0,1
	8	16	56	55,51	56	55,10	— 0,41	112	39	59,79	40	2,00	+ 2,2
	10	17	5	42,17	5	41,90	— 0,27	112	52	19,09	52	21,00	+ 1,9
	12	17	14	31,14	14	30,20	— 0,94	113	2	45,82	2	50,00	+ 4,2
	13	17	18	56,06	18	55,00	— 1,06	113	7	21,50	7	23,00	+ 1,5
	14	17	23	21,06	23	20,10	— 0,96	113	11	24,33	11	30,00	+ 5,7
	15	17	27	46,13	27	45,50	— 0,63	113	15	6,63	15	9,00	+ 2,4
	16	17	32	12,26	32	11,10	— 1,16	113	18	17,11	18	20,00	+ 2,9
	17	17	36	37,94	36	36,80	— 1,14	113	20	58,32	21	2,00	+ 3,7
	19	17	45	30,27	45	29,00	— 1,27	113	24	57,30	25	3,00	+ 5,7
	20	17	49	56,22	49	55,40	— 0,82	113	26	18,21	26	21,00	+ 2,8
	21	17	54	23,11	54	21,90	— 1,21	113	27	7,54	27	11,00	+ 3,5
	22	17	58	49,56	58	48,50	— 1,06	113	27	31,33	27	33,00	+ 1,7
	23	18	3	16,20	3	14,90	— 1,30	113	27	21,84	27	27,00	+ 5,2
	24	18	7	42,62	7	41,50	— 1,12	113	26	41,37	26	52,00	+ 10,6
	26							113	24	10,09	24	17,00	+ 6,9
	29	18	29	54,80	29	53,80	— 1,00	113	16	47,34	16	53,00	+ 5,7
	31	18	38	46,41	38	45,30	— 1,11	113	9	31,19	9	36,00	+ 4,8

We can now compute from the above observations the value of ϖ the apparent obliquity of the Ecliptic: for this purpose we have at once, tan.

Note. The above columns of A.R. and N.P.D. are necessarily due to the instant of the Sun's centre transiting the Meridian of the Madras Observatory, which according to the observations of my predecessor is situated in longitude *5h.* 21*m.* 9,00*s.* East of the Greenwich Royal Observatory.

w = tan. D × cosect. A.R. or we may compute the reduction to the Solstice R by the formulæ $R = 2 \text{ sin. } 2\frac{1}{2}\ d \text{ A.R.} \times \text{cos. D} \times \frac{sin.\ w'}{sin.\ 1''}$ where d A.R. represents the distance of the Sun's true Right Ascension, from the Solstice, and w', the apparent obliquity as near as it is known, for an error of 3 or 4 seconds in the assumption does not perceptibly alter the value of R. In each of these cases we determine the obliquity with reference to the place of the Sun, which (by reason of the action of the Moon and Planets upon the Earth,) does not appear accurately to describe the Ecliptic; account must consequently be taken of the Sun's latitude. Making use of the second formulæ, assuming $w' = 23° 27' 34''$, and computing the Sun's latitude from Vince's Solar Tables, we have from the observations about the time of Summer Solstice.

	N.P.D. of the Sun at the Summer Solstice.	R	Sun's Latitude.	Solsticial N.P.D.	Correction for ☽ Nut.	Correction for ☉ Nut. t. 0,46 / 365	Remarks.
1831	° ′ ″	° ′ ″	″	° ′ ″	″	″	
May 30	68 19 41,32	1 47 20,88	+ 0,48	*66 32 20,92	+ 7,68	+ 0,59	
June 1	68 2 12,49	1 29 42,43	+ 0,18	30,24	+ 7,68	+ 0,61	
2	67 53 50,07	1 21 27,12	+ 0,04	22,99	+ 7,67	+ 0,62	
3	67 45 57,42	1 13 33,38	— 0,10	23,94	+ 7,67	+ 0,63	
4	67 38 27,30	1 6 5,60	— 0,25	* 21,54	+ 7,66	+ 0,65	
5	67 31 31,87	0 59 0,24	— 0,39	31,24	+ 7,65	+ 0,66	
6	67 24 44,60	0 52 19,15	— 0,49	24,96	+ 7,65	+ 0,67	
7	67 18 27,93	0 45 59,96	— 0,56	27,41	+ 7,64	+ 0,68	
8	67 12 27,90	0 40 4,20	— 0,60	23,10	+ 7,64	+ 0,69	
9	67 7 2,31	0 34 33,26	— 0,62	28,43	+ 7,63	+ 0,70	
10	67 1 55,96	0 29 27,00	— 0,59	28,37	+ 7,62	+ 0,71	
11	66 57 14,54	0 24 42,75	— 0,53	31,26	+ 7,62	+ 0,72	
12	66 52 57,91	0 20 26,97	— 0,43	30,51	+ 7,61	+ 0,73	
13	66 49 4,12	0 16 33,00	— 0,30	30,82	+ 7,60	+ 0,73	
14	66 45 29,31	0 13 3,95	— 0,16	25,20	+ 7,60	+ 0,73	
16	66 39 49,73	0 7 19,62	+ 0,14	30,25	+ 7,59	+ 0,74	
19	66 34 9,04	0 1 48,58	+ 0,58	* 21,04	+ 7,58	+ 0,76	
21	66 32 38,75	0 0 11,38	+ 0,74	28,11	+ 7,58	+ 0,76	
22	66 32 30,67	0 0 0,02	+ 0,77	31,42	+ 7,57	+ 0,76	
23	66 32 37,94	0 0 13,50	+ 0,77	25,21	+ 7,56	+ 0,76	
24	66 33 20,66	0 0 51,63	+ 0,74	29,77	+ 7,56	+ 0,76	
25	66 34 24,83	0 1 54,74	+ 0,66	30,75	+ 7,55	+ 0,76	
26	66 35 50,95	0 3 22,64	+ 0,58	28,89	+ 7,54	+ 0,76	
27	66 37 48,33	0 5 15,12	+ 0,43	33,64	+ 7,54	+ 0,75	
28	66 39 58,57	0 7 32,22	+ 0,29	26,64	+ 7,53	+ 0,75	
29	66 42 43,86	0 10 13,83	+ 0,14	30,17	+ 7,53	+ 0,75	
30	66 45 44,26	0 13 20,22	+ 0,02	24,06	+ 7,52	+ 0,75	
July 1	66 49 20,65	0 16 50,87	— 0,13	29,65	+ 7,52	+ 0,74	
2	66 53 16,37	0 20 45,68	— 0,26	30,43	+ 7,51	+ 0,74	
3	66 57 34,25	0 25 4,28	— 0,36	29,61	+ 7,51	+ 0,73	

* These are omitted in taking the mean.

	N.P.D. of the Sun at the Summer Solstice.	R	Sun's Latitude.	Solsticial N.P.D.	Correction for ☽ Nut.	Correction for ⊙ Nut. t. 0,46 / 365	Remarks.
1831	° ′ ″	° ′ ″	″	° ′ ″	″	″	
July 6	67 12 55,05	0 40 27,24	— 0,50	27,31	+ 7,49	+ 0,71	
7	67 18 48,93	0 46 22,70	— 0,48	25,75	+ 7,48	+ 0,70	
8	67 25 8,24	0 52 41,10	— 0,44	26,70	+ 7,48	+ 0,69	
11	67 46 22,42	1 13 57,38	— 0,09	24,95	+ 7,46	+ 0,67	
14	68 11 6,01	1 38 42,18	+ 0,36	24,19	+ 7,45	+ 0,64	
17	68 39 10,43	2 0 47,20	+ 0,78	24,01	+ 7,44	+ 0,60	
			Mean of 33 =	66 32 27,87			
				90			
			Mean value of ϖ =	23 27 32,13	+ 7,57	+ 0,71	

Similarly we have from the observations about the time of the Winter Solstice.

	N.P.D. of the Sun at the Winter Solstice.	R	Sun's Latitude.	Solsticial N.P.D.	Correction for ☽r. Nut.	Correction for ⊙r. Nut. t. 0,46 / 365	Remarks.
1831	° ′ ″	° ′ ″	″	° ′ ″	″	″	
Jan. 28	108 21 56,49	5 5 31,86	— 0,45	113 27 27,90	+ 8,23	+ 0,16	
29	108 6 13,47	5 21 18,90	— 0,31	32,06	+ 8,23	+ 0,14	
30	107 50 5,55	5 37 25,72	— 0,17	31,10	+ 8,22	+ 0,12	
Feb. 1	107 16 53,95	6 10 35,34	+ 0,14	29,44	+ 8,21	+ 0,08	
2	106 59 51,73	6 27 37,72	+ 0,29	29,74	+ 8,20	+ 0,06	
Nov. 12	107 31 37,85	5 55 55,38	+ 0,27	33,50	+ 6,79	+ 0,49	
13	107 48 6,76	5 39 36,83	+ 0,10	33,69	+ 6,78	+ 0,51	
18	109 4 56,01	4 22 38,30	— 0,42	33,89	+ 6,74	+ 0,61	
19	109 19 18,39	4 8 17,28	— 0,44	35,22	+ 6,74	+ 0,63	
20	109 33 22,84	3 54 12,45	— 0,44	34,85	+ 6,73	+ 0,64	
21	109 47 2,57	3 40 31,22	— 0,38	33,41	+ 6,73	+ 0,66	
22	110 0 22,31	3 27 12,07	— 0,31	34,07	+ 6,72	+ 0,68	
27	111 1 18,15	2 26 11,78	+ 0,40	30,33	+ 6,69	+ 0,77	
29	111 23 3,48	2 4 29,45	+ 0,68	33,61	+ 6,68	+ 0,80	
Dec. 1	111 43 6,28	1 44 26,36	+ 0,84	33,48	+ 6,67	+ 0,82	
2	111 52 28,75	1 35 1,05	+ 0,87	30,67	+ 6,66	+ 0,83	
3	112 1 31,69	1 26 2,20	+ 0,87	34,76	+ 6,65	+ 0,84	
4	112 10 4,13	1 17 28,07	+ 0,84	33,04	+ 6,64	+ 0,85	
5	112 18 9,56	1 9 19,22	+ 0,77	29,55	+ 6,63	+ 0,87	
7	112 33 12,14	0 54 21,03	+ 0,53	33,70	+ 6,62	+ 0,90	
8	112 39 59,79	0 47 31,86	+ 0,38	32,03	+ 6,61	+ 0,91	
10	112 52 19,09	0 35 13,50	+ 0,09	32,68	+ 6,60	+ 0,93	
12	113 2 45,82	0 24 43,05	— 0,23	28,64	+ 6,59	+ 0,94	
13	113 7 21,50	0 20 9,17	— 0,35	30,32	+ 6,58	+ 0,95	
14	113 11 24,33	0 16 3,08	— 0,45	26,96	+ 6,57	+ 0,96	
15	113 15 6,63	0 12 24,86	— 0,51	30,98	+ 6,57	+ 0,96	
16	113 18 17,11	0 9 13,97	— 0,52	30,56	+ 6,56	+ 0,97	
17	113 20 58,32	0 6 34,60	— 0,52	32,40	+ 6,56	+ 0,98	
19	113 24 57,30	0 2 30,67	— 0,40	27,57	+ 6,54	+ 0,98	
20	113 26 18,21	0 1 12,63	— 0,30	30,54	+ 6,53	+ 0,98	
21	113 27 7,54	0 0 22,60	— 0,15	29,99	+ 6,52	+ 0,99	
22	113 27 31,33	0 0 1,00	— 0,01	32,32	+ 6,52	+ 0,99	

	N.P.D. of the Sun at the Summer Solstice.	R	Sun's Latitude.	Solsticial N.P.D.	Correction for ☽ Nut.	Correction for ⊙ Nut. $+\frac{t.\,0,46}{365}$	Remarks.
1831	° ′ ″	° ′ ″	″	° ′ ″	″	″	
Dec. 23	113 27 21,84	0 0 7,67	+ 0,13	29,64	+ 6,51	+ 1,00	
24	113 26 41,37	0 0 42,65	+ 0,28	* 24,30	+ 6,50	+ 0,99	
26	113 24 10,09	0 3 17,36	+ 0,55	28,00	+ 6,49	+ 0,98	
29	113 16 47,34	0 10 41,64	+ 0,76	29,74	+ 6,47	+ 0,97	
31	113 9 31,19	0 17 57,96	+ 0,74	29,89	+ 6,46	+ 0,96	
		Mean of 36 =		113 27 31,397			
				90			
		Mean value of ϖ =		23 27 31,397	+ 6,84	+ 0,74	

In the above column "⊙r. Nut. $+\frac{t.\,0'',46''}{365}$. t represents the number of days from January 1, so that we have the mean obliquity for January 1, 1831, from observations near the Summer Solstice = 23° 27′ 40″,41

——————————————— Winter Solstice = 38″,98.

Now at the time of Summer Solstice, the Sun is situated 10° 23′ to the North, and at the Winter Solstice, 36° 31′ to the South of the Zenith; hence the former (on account of the small uncertainty in the refraction) is preferable to the latter, and cannot on this account err to the amount of one tenth of a second; in the case of the Winter Solstice, an error exceeding four or five tenths of a second need not be expected, since the several tables of refraction do not disagree, (at this distance from the Zenith) to a larger amount; the disagreement above found is consequently to be accounted for, by errors of observation, and a wrong assumption of the latitude; in the absence of data to show the probable amount of the error of observation, we will suppose the latitude to be the sole cause of disagreement, hence it appears that instead of 13° 4′ 9″,0 (which we have assumed for the latitude of Madras,) we must use 13° 4′ 8″,29 in order to reconcile the observations of the Summer and Winter Solstice, and we have the mean obliquity for January 1, 1831, = 23° 27′ 39″,70.

We will now from the observations near the time of the Equinoxes compare the Right Ascension of the Sun as determined from Stars by the Transit Instrument, with the A.R. computed from the observations of N.P.D. we have as follows.

* This is omitted in taking the mean.

Observations of the Sun near the Vernal Equinox.

	Observed N.P.D. of the Sun.	Corrections.	Reduced N.P.D.	Computed A.R.	Observed A.R.	Error of Eq. Point.	Remarks.
1831	° m. s.	s.	° m. s.	h. m. s.	m. s.	s.	
May 9	94 45 12,92	+ 0,36	94 45 13,28	23 15 48,53	15 49,23	+ 0,70	
10	94 21 38,54	+ 0,24	94 21 38,78	21 19 31,04	19 30,46	— 0,58	
11	93 58 12,89	+ 0,11	93 58 13,00	23 23 11,27	23 11,53	+ 0,26	
12	93 34 35,62	— 0,03	93 34 35,59	23 26 52,54	26 51,98	— 0,56	
13	93 11 1,71	— 0,15	93 11 1,56	23 30 32,58	30 32,11	— 0,47	
14	92 47 23,76	— 0,30	92 47 23,46	23 34 12,63	34 12,31	— 0,32	
15	92 23 45,89	— 0,44	92 23 45,45	23 37 52,16	37 52,15	+ 0,04	
17	91 36 27,07	— 0,63	91 36 26,44	23 45 10,22	45 10,01	— 0,21	
19	90 48 59,36	— 0,70	90 48 58,66	23 52 28,45	52 28,23	— 0,22	
20	90 25 21,09	— 0,70	90 25 20,39	23 56 6,43	56 6,47	+ 0,04	
22	89 37 55,28	— 0,60	89 37 54,68	0 3 23,63	3 23,67	+ 0,04	
23	89 14 20,76	— 0,50	89 14 20,26	0 7 0,98	7 2,15	+ 1,17	
25	88 27 4,51	— 0,22	88 27 4,29	0 14 17,32	14 17,28	— 0,04	
27	87 39 58,84	— 0,05	87 39 58,79	0 21 33,23	21 33,42	+ 0,19	
28	87 16 28,75	+ 0,18	87 16 28,93	0 25 11,37	25 11,25	— 0,12	
30	86 29 41,22	+ 0,41	86 29 41,63	0 32 27,38	32 27,00	— 0,38	
31	86 6 31,75	+ 0,50	86 6 32,25	0 36 4,14	36 5,06	+ 0,92	
April 1	85 43 13,33	+ 0,54	85 43 13,87	0 39 43,04	39 43,24	+ 0,20	
2	85 20 8,81	+ 0,55	85 20 9,36	0 43 20,60	43 21,00	+ 0,40	
					Mean of 19 =	+ 0,055	

Observations of the Sun near the Autumnal Equinox.

	Observed N.P.D. of the Sun.	Corrections.	Reduced N.P.D.	Computed A.R.	Observed A.R.	Error of Eq. Point.	Remarks.
1832	° m. s.	s.	° m. s.	h. m. s.	m. s.	s.	
Sept. 11	85 9 24,86	+ 0,86	85 9 25,72	11 14 57,88	14 56,98	— 0,90	
12	85 32 11,87	+ 0,88	85 32 12,75	11 18 33,25	18 33,17	— 0,80	
13	85 55 7,08	+ 0,87	85 55 7,95	11 22 8,89	22 8,57	— 0,32	
14	86 18 8,00	+ 0,83	86 18 8,83	11 25 44,67	25 44,29	— 0,38	
15	86 41 5,93	+ 0,74	86 41 6,67	11 29 19,28	29 19,82	+ 0,54	
16	87 4 14,31	+ 0,62	87 4 14,93	11 32 54,89	32 55,70	+ 0,81	
17	87 27 27,62	+ 0,49	87 27 28,11	11 36 30,71	36 30,82	+ 0,11	
19	88 13 53,74	+ 0,22	88 13 53,96	11 43 40,89	43 41,46	+ 0,57	
21	89 0 32,99	— 0,02	89 0 32,97	11 50 51,84	50 52,24	+ 0,40	
22	89 23 58,32	— 0,17	89 23 58,15	11 54 27,85	54 27,86	+ 0,01	
24	90 10 44,58	— 0,33	90 10 44,25	12 1 38,97	1 39,09	+ 0,12	
25	90 34 4,23	— 0,36	90 34 3,87	12 5 14,01	5 14,41	+ 0,40	
26	90 57 30,43	— 0,35	90 57 30,08	12 8 50,17	8 50,68	+ 0,51	
27	91 20 57,14	— 0,32	91 20 56,82	12 12 26,60	12 26,95	+ 0,35	
28	91 44 17,17	— 0,25	91 44 16,92	12 16 2,26	16 3,20	+ 0,94	
29	92 7 42,70	— 0,16	92 7 42,54	12 19 39,09	19 39,83	+ 0,74	
Oct. 6	94 50 44,85	+ 0,74	94 50 45,59	12 45 3,85	45 4,57	+ 0,72	
					Mean of 17 =	+ 0,267	

Taking the mean between 19 observations in the Spring and 17 in the Autumn, we have for the error of the assumed Equinoctial point + 0″,16. Now the Equinoctial point we have assumed is Dr. Marklyne + 0″,21, hence the true point of the Equinox from the observations appears to be Dr. Marklyne + 0″,05. To account for the disagreement between the results of Spring and Autumn we will again suppose the latitude in error, for this purpose, at the time of the Equinoxes; we have

$$d \text{ Declination} = \frac{d \text{ A.R.}}{cot.\ w}$$

this being applied in the above case gives the latitude of Madras (which will reconcile the observations of the Sun at the Vernal and Autumnal Equinox,) 13° 4′ 8″,20 agreeing very nearly with that found at Page 77.

We now come to the Planetary Observations; these have been reduced only to their *apparent* place, as would be viewed by an observer situated at the centre of the Earth, and consequently require to be corrected for aberration; the Parallaxes have been computed from the numbers given in the Supplement to the Nautical Almanac which are stated to be computed with the assistance of Professor SCHUMACHER's Tables.

Apparent Right Ascension and North Polar Distance of MERCURY.

Date.	Mean Time of Observation.	Point Observed.	A.R.	Point Observed.	N.P.D.	REMARKS.
1831	*h. m. s.*		*h. m. s.*		° *m. s.*	
February 18	22 26 6,1	Centre.	20 19 42,93	Centre.	109 7 29,06	
20	22 28 50,8	——	20 30 21,34	——	108 59 27,52	
23		——		——	108 37 33,61	
26	22 34 1,0	——	20 59 11,27	——	108 3 37,27	
27	22 35 17,6	——	21 4 24,65	——	107 49 46,64	
March 1	22 38 6,0	——	21 15 6,58	——	107 18 1,81	
2		——		——	107 0 6,07	
3	22 43 16,4	——	21 28 11,10	——	106 40 53,22	
5		——		——	105 58 33,29	
6	22 46 23,5	——	21 43 8,36	——	105 35 27,14	
7	22 48 3,0	——	21 48 54,69	——	105 10 59,85	
8	22 50 6,9	——	21 54 45,41	——	104 45 15,29	
10	22 54 4,0	——	22 6 36,35	——	103 49 51,26	
11	22 56 6,4	——	22 12 35,78	——	103 20 14,49	
12	22 58 21,0	——	22 18 47,19	——	102 49 22,39	
16	23 7 0,1	——	22 43 13,97	——	100 33 20,39	
19		——		——	98 38 11,70	
21	23 19 4,1	——	23 15 2,56	——	97 15 31,28	
24	23 26 54,1	——	23 34 43,61	——		
28	23 38 7,6	——	0 1 45,23	——	91 49 32,43	
30	23 44 7,5	——	0 15 39,01	——	90 7 0,59	
July 1	22 43 24,8	——	5 21 35,89	——	68 9 0,70	
5	22 57 55,4	——	5 51 45,11	——	67 2 14,60	
7	23 6 35,1	——	6 8 19,47	——	66 38 11,01	
10	23 21 3,9	——	6 34 40,39	——	66 18 9,58	

Apparent Right Ascension and North Polar Distance of VENUS.

Date.	Mean Time.	Point Observed.	A.R.	Point Observed.	N.P.D.	Remarks.
1831	*h. m. s.*		*h. m. s.*		° *m. s.*	
February 19	1 10 25,2	Centre.	23 4 28,98	Centre.	97 28 52,29	
20	1 11 6,3	——	23 9 6,82	——	96 59 11,14	
21	1 11 46,7	——	23 13 43,68	——	96 29 25,88	
22	1 12 25,6	——	23 18 19,25	——	95 59 21,93	
23	1 13 3,3	——	23 22 53,55	——	95 29 11,31	
24	1 13 41,4	——	23 27 28,21	——	94 58 52,48	
25	1 14 20,0	——	23 32 3,56	——	94 28 20,32	
26	1 14 55,1	——	23 36 35,49	——	93 57 42,04	
March 2		——		——	91 54 28,77	
3	1 17 52,1	——	23 59 15,64	——	91 23 30,09	
4		——		——	90 52 25,80	
5	1 19 0,7	——	0 8 17,48	——	90 21 25,37	
6	1 19 35,5	——	0 12 48,93	——	89 50 20,38	
7	1 20 8,7	——	0 17 18,80	——	89 19 13,19	
8	1 20 42,9	——	0 21 49,57	——	88 48 1,00	
10	1 21 50,8	——	0 30 50,91	——	87 45 55,60	
11	1 22 24,5	——	0 35 21,22	——	87 14 56,40	
12	1 22 58,3	——	0 39 51,63	——	86 43 57,59	
13	1 23 32,8	——	0 44 22,61	——	86 13 5,36	
14	1 23 6,9	——	0 47 53,45	——	85 42 23,91	
17		——		——	84 10 24,93	
19	1 27 2,8	——	1 11 32,63	——	83 9 38,93	
20	1 27 40,3	——	1 16 6,77	——	82 39 37,21	
21		——		——	82 9 46,58	
22		——		——	81 40 3,65	
27		——		——	79 14 18,65	
28	1 32 46,2	——	1 52 46,18	——	78 45 52,84	
29	1 33 27,6	——	1 57 24,20	——	78 17 44,96	
April 2	1 36 21,0	——	2 16 4,20	——	76 28 1,51	
10	1 42 51,1	——	2 54 7,65	——	73 4 50,97	
May 22	2 31 37,4	——	6 28 37,43	——	64 45 14,87	
23	2 32 52,7	——	6 33 49,29	——		
26	2 36 32,4	——	6 49 19,34	——	65 0 32,04	
27	2 37 44,8	——	6 54 28,50	——	65 4 6,67	
30	2 41 15,4	——	7 9 49,30	——		
June 1	2 43 30,1	——	7 19 57,52	——	65 40 48,55	
2	2 44 36,0	——	7 25 0,24	——	65 50 1,63	
3	2 45 41,3	——	7 30 2,31	——	65 59 54,77	
5	2 47 46,1	——	7 40 0,53	——	66 21 33,59	
29	3 4 41,1	——	9 31 35,72	——	73 30 59,93	
July 2	3 5 45,1	——	9 44 20,40	——	74 42 31,35	
August 12	2 50 31,7	——	12 11 2,38	——		
13	2 49 37,6	——	12 13 54,59	——	93 50 37,52	
20	2 41 48,5	——	12 33 41,18	——	96 53 56,27	
Dec. 10	20 46 48,7	2 Limb.	14 3 12,88	——	99 37 56,36	

Apparent Right Ascension and North Polar Distance of MARS.

Date.	Mean Time.	Point Observed.	A.R.	Point Observed.	N.P.D.	Remarks.
1831	*h. m. s.*		*h. m. s.*		° *m. s.*	
February 20	4 51 56,9	Centre.	2 50 33,88	Centre.	72 28 16,79	
21	4 50 26,9	——	2 52 59,84	——	72 17 13,89	
22	4 48 56,0	——	2 55 25,14	——	72 6 13,17	
23	4 47 27,1	——	2 57 52,63	——	71 55 25,01	
25		——		——	71 33 59,55	
28	4 40 5,4	——	3 10 12,47	——	71 2 50,60	
March 4	4 34 19,0	——	3 20 11,32	——	70 22 58,21	
13	4 21 44,8	——	3 43 3,94	——	69 0 31,21	
May 22		——		——	65 44 10,32	

Apparent Right Ascension and North Polar Distance of JUPITER.

Date.	Mean Time.	Point Observed.	A.R.	Point Observed.	N.P.D.	Remarks.
1831	*h. m. s.*		*h. m. s.*		° *m. s.*	
March 1	22 9 23,4	Centre.	20 46 19,34	Centre.	108 26 22,51	
3	22 3 31,1	——	20 48 19,32	——	108 19 39,93	
5	21 57 38,7	——	20 50 18,98	——	108 11 1,98	
August 23	11 9 2,2	——	21 14 6,83	——	107 7 48,31	
26	10 55 47,8	——	21 12 39,90	——	107 14 26,23	
28	10 47 0,6	——	21 11 44,25	——	107 18 37,22	
29	10 42 36,9	——	21 11 16,51	——		
30	10 38 13,9	——	21 10 49,25	——	107 22 43,96	
Sept. 1	10 29 9,2	——	21 9 56,21	——	107 26 35,25	
2	10 25 7,8	——	21 9 30,78	——	107 28 29,80	
4	10 16 25,8	——	21 8 40,28	——	107 31 11,22	
9	9 54 49,9	——	21 6 43,85	——	107 40 34,25	
11	9 46 15,8	——	21 6 1,13	——	107 43 30,75	
13	9 37 43,8	——	21 5 21,22	——	107 46 21,60	
15	9 29 14,5	——	21 4 43,49	——	107 49 2,97	
17	9 20 48,2	——	21 4 8,93	——	107 51 28,24	
20	9 8 13,6	——	21 3 21,89	——	107 54 34,17	
22	8 59 55,0	——	21 2 54,06	——	107 56 29,57	
24	8 51 37,3	——	21 2 29,12	——	107 58 3,27	
29	8 31 9,6	——	21 1 40,79	——		
30	8 27 4,0	——	21 1 31,12	——	108 1 32,63	
October 2	8 19 1,3	——	21 1 20,26	——	108 2 13,30	
3	8 15 0,5	——	21 1 15,29	——	108 2 30,18	
6		——		——	108 3 10,90	
8	7 55 7,6	——	21 1 1,98	——		
14	7 31 43,0	——	21 1 12,75	——		
16	7 24 2,8	——	21 1 24,52	——	108 0 48,00	
20	7 8 44,5	——	21 1 49,69	——		
21	7 4 59,6	——	21 2 0,79	——	107 57 36,71	
22	7 1 13,8	——	21 2 10,87	——	107 56 44,64	
23	6 57 29,4	——	21 2 22,43	——	107 55 52,67	
25	6 50 0,7	——	21 2 45,63	——	107 53 58,85	
30	6 31 33,1	——	21 3 57,91	——	107 48 14,36	
31	6 27 55,2	——	21 4 15,95	——	107 46 57,40	
Nov. 1	6 24 16,3	——	21 4 33,13	——	107 45 36,85	
3	6 17 1,7	——	21 5 10,14	——	107 42 44,09	

Apparent Right Ascension and North Polar Distance of JUPITER, *continued.*

Date.	Mean Time.	Point Observed.	A.R.	Point Observed.	N.P.D.	Remarks.
1831	*h. m. s.*		*h. m. s.*		° *m. s.*	
Nov. 6	6 6 15,7	Centre.	21 6 12,06	Centre.	107 38 9,67	
9	5 55 34,8	——	21 7 19,14	——	107 32 48,83	
Dec. 11	4 7 21,4	——	21 24 57,55	——	106 10 12,28	

It is proper I should here state, that the Right Ascension of the centre of Jupiter was obtained by taking the time of transit of the *first limb* at the first and second wires, of the *centre* by estimation, at the third wire, and of the *second limb* at the fourth and fifth wires.

Apparent Right Ascension and North Polar Distance of SATURN.

Date.	Mean Time.	Point Observed.	A.R.	Point Observed.	N.P.D.	Remarks.
1831	*h. m. s.*		*h. m. s.*		° *m. s.*	
March 5	11 8 38,4	Centre.	9 59 32,05	Centre.	75 56 45,81	
6	11 4 26,1	——	9 59 15,68	——	75 55 10,39	
8	10 55 59,4	——	9 58 40,58	——	75 52 7,53	
9	10 51 46,7	——	9 58 23,84	——	75 50 36,60	
10	10 47 34,0	——	9 58 7,04	——	75 49 9,29	
11	10 43 21,9	——	9 57 50,78	——	.....	Cloudy.
12	10 39 9,4	——	9 57 34,02	——	75 46 12,36	
13	10 34 57,9	——	9 57 18,42	——	75 44 51,08	
16	10 22 25,6	——	9 56 33,83	——	75 40 44,50	
18	10 14 2,7	——	9 56 2,72	——	75 38 14,59	
19	10 9 52,9	——	9 55 48,63	——	75 37 1,04	
20	10 5 42,2	——	9 55 33,82	——	75 35 41,60	
21		——		——	75 31 14,01	
23	9 53 13,4	——	9 54 52,70	——		
25	9 44 56,2	——	9 54 27,25	——		
28		——		——	75 26 0,06	
29	9 28 25,0	——	9 53 39,81	——	75 25 2,78	
30	9 25 17,4	——	9 54 27,93	——	75 24 9,49	
April 1	9 16 5,2	——	9 53 7,66	——	75 22 26,95	
2	9 11 59,1	——	9 52 57,19	——	75 21 38,47	
3	9 7 53,8	——	9 52 47,77	——	75 21 49,66	
5	8 59 43,3	——	9 52 29,07	——	75 19 22,26	
6	8 55 39,2	——	9 52 20,79	——	75 18 41,20	
9	8 43 28,8	——	9 51 57,77	——	75 16 49,80	
10		——		——	75 16 20,30	
11	8 35 22,8	——	9 51 43,73	——	75 15 50,18	
13	8 27 17,6	——	9 51 30,56	——		
14	8 23 16,9	——	9 51 25,87	——		
15	8 19 15,8	——	9 51 20,59	——		
16	8 15 15,6	——	9 51 16,03	——		
20	7 59 17,5	——	9 51 1,56	——	75 12 59,62	
21	7 55 18,4	——	9 50 53,41	——	75 12 48,22	
22		——	9 50 56,40	——	75 12 41,72	

Apparent Right Ascension and North Polar Distance of SATURN, *continued.*

Date.	Mean Time.	Point Observed.	A.R.	Point Observed.	N.P.D.	REMARKS.
1831	*h. m. s.*		*h. m. s.*		° *m. s.*	
April 23	7 47 21,7	Centre.	9 50 53,47	Centre.	75 12 38,77	
25	7 39 28,3	——	9 50 51,76	——	75 12 37,91	
26	7 35 31,9	——	9 50 51,28	——	75 12 40,21	
27	7 31 36,1	——	9 50 51,41	——		
28	7 27 40,6	——	9 50 51,85	——	75 12 54,17	
29	7 23 45,1	——	9 50 52,23	——	75 13 4,37	
30	7 19 50,4	——	9 50 53,46	——	75 13 17,57	
May 1	7 15 55,2	——	9 50 54,11	——	75 13 32,64	
2	7 12 1,2	——	9 50 55,99	——	75 13 46,13	
3	7 8 8,0	——	9 50 58,72	——	75 14 2,53	
4	7 4 14,6	——	9 51 1,36	——	75 14 24,13	
6	6 56 29,0	——	9 51 7,56	——	75 16 10,95	
9		——		——	75 17 39,86	
10	6 41 1,9	——	9 51 26,31	——	75 18 6,71	
13	6 29 34,4	——	9 51 44,40	——	75 19 57,47	
14	6 25 45,2	——	9 51 51,23	——	75 20 39,68	
16	6 18 7,1	——	9 52 4,79	——	75 22 7,17	
17	6 14 18,9	——	9 52 12,54	——	75 22 54,39	

The above observations of Saturn were made with reference to the centre of the body by estimation; six cases however occur with the Transit observations, in which the transit of the first and second edges of the ring, was observed, they are as follows.

March 29	Transit of 2d edge	— Transit of 1st edge	.....3″,30*
April 22	do.	do.	.....2″,99*
27	do.	do.	.....2″,60
28	do.	do.	.....2″,66
29	do.	do.	.....2″,80
30	do.	do.	.....2″,62

Apparent Right Ascension and North Polar Distance of GEORGIAN SIDUS.

Date.	Mean Time.	Point Observed.	A.R.	Point Observed.	N.P.D.	REMARKS.
1831	*h. m. s.*		*h. m. s.*		° *m. s.*	
August 10	11 46 6,9	Centre.	21 0 2,43	Centre.		
23	10 53 59,6	——	20 58 1,56	——	107 55 30,69	
30	10 24 27,4	——	20 57 0,49	——	107 59 38,01	
Sept. 1	10 16 18,7	——	20 56 43,60	——	108 0 48,58	
2	10 12 14,5	——	20 56 35,29	——	108 1 20,81	
4	10 4 6,8	——	20 56 19,24	——	108 2 25,25	
7	9 51 55,4	——	20 55 55,68	——	108 3 57,61	
11	9 35 42,8	——	20 55 26,38	——	108 5 55,49	

* These were made by an inexperienced Assistant.

Apparent Right Ascension and North Polar Distance of GEORGIAN SIDUS, *continued.*

Date.	Mean Time.	Point Observed.	A.R.	Point Observed.	N.P.D.	Remarks.
1831	*h. m. s.*		*h. m. s.*		° *m. s.*	
Sept. 15	9 19 24,4	Centre.	20 54 51,81	Centre.	108 8 30,66	
October 2	8 13 13,5	——	20 53 31,56	——	108 13 9,89	
3	8 7 14,2	——	20 53 27,67	——	108 13 23,18	
6	7 55 16,4	——	20 53 17,63	——	108 14 0,89	
7	7 52 18,1	——	20 53 15,18	——	108 14 18,50	
8	7 47 19,2	——	20 53 12,30	——		
14	7 23 31,8	——	20 53 0,24	——		
16	7 15 40,9	——	20 53 1,00	——	108 15 0,86	
21	6 55 5,9	——	20 52 55,47	——		
22	6 52 0,2	——	20 52 55,80	——	108 14 58,96	
23	6 48 5,1	——	20 52 56,61	——	108 14 56,38	
25	6 40 14,2	——	20 52 57,57	——	108 14 46,79	

The above are I regret to state all the Planetary Observations which were made in the Year 1831; the four smaller Planets were altogether neglected by reason of my not having received (during my stay at Madras) the Supplement to the Nautical Almanac, in which their places are given, and from a variety of occupations, consequent to an observatory when first coming into action, I could not find time to compute an Ephemeris.

We now come to the Observations of the MOON, which we will compare with the interpolated place from the Nautical Almanac.

Comparison of the observed Right Ascension and North Polar Distance of the Moon, with the interpolated place from the Nautical Almanac.

Date.	Madras Mean Time.	Limb Observed.	Observed A.R. of ☽'s Centre.	A.R. from Nautical Almanac.	Error of Tables.	Limb Observed.	Observed N.P.D. of ☽'s Centre.	N.P.D. from Nautical Almanac.	Error of Tables.
1831	*h. m. s.*		° *m. s.*	*m. s.*	*s.*		° ′ ″	′ ″	″
Feb. 20	6 50 42,8	1	72 41 42,9	41 39,2	— 3,7	S	72 41 45,4	41 38,0	— 7,4
21	7 47 40,2	1	87 57 39,0	57 43,5	+ 4,5	S	71 15 46,5	15 46,2	— 0,3
22	8 44 47,2	1	103 15 41,5	15 47,9	+ 6,4	N	71 4 30,6	4 30,9	+ 0,3
23	9 40 58,3	1	118 19 41,5	19 56,3	+ 14,8	S	72 6 54,7	6 52,3	— 2,4
25	11 27 16,8	1	146 56 18,0	56 26,4	+ 8,4	S	77 16 53,3	16 49,5	— 3,8
26	12 17 48,7	Centre.	160 19 27,4	19 27,0	— 0,4	N	80 56 45,6	56 39,8	— 5,8
27	13 6 2,6	2	173 8 43,2	8 28,4	— 14,8	N	84 59 33,8	59 24,5	— 9,3
28						S	89 11 7,6	10 55,0	— 12,6
Mar. 1	14 35 38,1	2	197 34 52,0	34 38,6	— 13,4	S	93 19 17,1	19 18,5	+ 1,4
2	15 19 18,7	2	209 31 1,8	30 59,7	— 2,1	S	97 14 41,5	14 30,4	— 11,1
3	16 3 6,0	2	221 28 41,6	28 32,7	— 8,9	S	100 47 50,0	47 55,4	+ 5,4
4						S	103 51 37,4	51 36,5	— 0,9
5	17 32 58,4	2	245 58 23,5	58 26,2	+ 2,7	S	106 18 36,5	18 40,4	+ 3,9
6	18 19 49,1	2	258 41 52,5	41 45,8	— 6,7	S	108 1 57,7	2 5,6	+ 7,9

Date.	Madras Mean Time.	Limb Observed.	Observed A.R. of ☽'s Centre.	A.R. from Nautical Almanac.	Error of Tables.	Limb Observed.	Observed N.P.D. of ☽'s Centre.	N.P.D. from Nautical Almanac.	Error of Tables.
1831	*h. m. s.*		° *m. s.*	*m. s.*	*s.*		° ′ ″	′ ″	″
March 21	6 40 22,8	1	98 41 11,1	41 5,5	— 5,6	N			
22	7 36 22,2	1	113 42 17,5	42 16,8	— 0,7	N	71 36 25,5	36 22,7	— 2,8
23	8 30 25,5	1	128 14 11,3	14 15,4	+ 4,1	N	73 23 45,6	23 46,7	+ 1,1
24						N	76 6 54,1		
25	10 11 23,7	1	155 29 27,0	30 22,8	— 4,2	N	79 31 46,1	31 38,6	— 7,5
26	10 58 31,1	1	169 18 5,9	18 1,6	— 4,3	N	83 25 21,6	25 23,9	+ 2,3
27	11 43 57,9	1	180 40 33,2	40 27,3	— 5,9	N	87 32 48,0	32 47,0	— 1,0
28	12 30 21,2	2	192 47 15,1	47 5,5	— 9,6	N	91 43 46,9	43 55,3	+ 8,4
29	13 14 6,8	2	204 44 38,9	44 34,9	— 4,0	S	95 46 34,0	46 33,9	— 0,1
30	13 57 53,5	2	216 42 10,2	42 1,0	— 9,2	S	99 31 22,0	31 17,4	— 4,6
31		2				S	102 49 9,6		
April 2	16 13 22,7	2	253 36 59,0	36 52,0	— 7,0	S	107 34 58,7	34 46,3	— 12,4
3	17 0 41,5	2	266 27 36,8	27 34,2	— 2,6	S	108 48 42,8	48 39,2	— 3,6
19	6 27 2,5	1	123 55 16,1	55 11,1	— 5,0	N	72 34 12,2	34 7,3	— 4,9
20	7 19 42,2	1	138 6 4,5	5 53,1	— 11,4	N	75 3 14,7	3 7,5	— 7,2
21	8 9 27,2	1	151 32 50,6	32 47,7	— 2,9	N	78 17 28,5	17 28,3	— 0,2
22	8 56 41,2	1	164 22 23,4	22 14,1	— 9,3	N	82 3 9,9	2 57,5	— 12,4
23	9 41 58,1	1	176 42 18,9	42 15,1	— 3,8	N	86 6 43,1	6 44,0	+ 0,9
25	11 9 23,5	1	200 35 19,0	35 10,9	— 8,1	N	94 23 56,0	23 51,0	— 5,0
26	11 53 47,9	1,2	212 27 25,5	27 25,0	— 0,5	N	98 17 5,4	17 7,7	+ 2,3
27	12 38 43,2	2	224 27 11,3	27 0,2	— 11,1	N	101 47 48,3	47 39,9	— 8,4
29	14 9 15,8	2	249 6 59,6	6 49,5	— 10,1	N	107 6 42,2	6 33,4	— 8,8
30	14 56 8,9	2	261 51 11,2	51 1,0	— 10,2	N	108 39 40,0	39 31,3	— 8,7
May 1	15 43 59,3	2	274 49 42,7	49 27,6	— 15,1	N	109 20 57,5	21 1,8	+ 4,3
2	16 32 29,9	2	287 58 38,6	58 23,2	— 15,4	N	109 6 58,1	7 6,3	+ 8,2
3	17 21 26,4	2	301 13 36,6	13 33,3	— 3,3	N	107 55 56,0	56 5,5	+ 9,5
20	7 41 6,7	1	173 1 22,1	1 12,0	— 10,1	N	84 39 7,1	39 0,8	— 6,3
21	8 25 22,0	1	185 5 53,5	5 42,0	— 11,5	N	88 50 8,3	50 16,1	+ 7,8
22	9 8 36,3	1	196 55 17,9	55 10,2	— 7,7	N	93 0 19,8	0 17,8	— 2,0
23	9 51 35,6	1	208 41 0,9	40 49,6	— 11,4	N	96 59 50,1	59 49,8	— 0,3
24	10 34 56,5	1	220 32 16,0	32 8,0	— 8,0	N	100 40 7,7	40 8,6	+ 0,9
25	11 19 9,0	1	232 36 30,6	36 21,9	— 8,7	N	103 52 31,0	52 36,4	+ 5,4
26	12 5 34,1	1,2	244 58 38,7	58 30,0	— 8,7	N	106 28 53,9	28 55,8	+ 1,9
27	12 53 14,5	2	257 39 17,8	39 19,5	+ 1,7	N	108 21 4,8	21 10,3	+ 5,5
29	14 29 20,0	2	283 42 39,0	42 36,5	— 2,5	N	109 29 13,5	29 15,6	+ 2,1
30	15 18 3,6	2	296 54 39,6	54 38,5	— 1,1	N	108 38 37,6	38 48,2	+ 10,6
31	16 6 44,0	2	310 5 58,4	5 58,8	+ 0,4	N	106 52 10,4	52 17,0	+ 6,6
June 1	16 55 11,3	2	323 13 53,3	13 52,6	— 0,7	N	104 12 58,9	13 11,6	+ 12,7
20	8 33 31,1	1	216 42 40,7	42 34,8	— 15,9	N	99 22 31,8	22 35,8	+ 4,0
21	9 17 17,3	1	228 40 13,2	39 39,9	— 33,3	N	102 46 49,4	46 56,3	+ 6,9
28	14 53 7,7	2	319 14 54,7	14 58,5	+ 3,8	N	105 17 25,2	17 30,3	+ 5,1
29	15 41 19,1	2	332 18 48,6	18 49,1	+ 0,5	N	102 6 45,2	7 7,1	+ 21,9
30	16 29 8,1	2	345 17 12,0	17 15,7	+ 3,7	N	98 16 20,4	16 34,9	+ 14,5
July 2	18 5 42,2	2	11 27 53,0	11 51,3	— 4,7	N	89 15 55,7	16 5,7	+ 10,0
17	6 30 29,9	1	212 29 4,7	28 58,2	— 6,5	N	97 52 38,7	52 44,8	+ 6,1
18	7 14 11,3	1	224 25 27,3	25 21,4	— 5,9	N	101 29 7,9	29 12,0	+ 4,1
29	16 3 38,9	2	7 28 48,5	28 34,5	— 14,0	N	90 48 41,0	48 38,8	— 2,2
Aug. 17	7 25 8,9	1	256 44 56,1	44 39,0	— 17,1	N	108 6 38,5	6 41,6	+ 3,1
22	11 30 42,0	1	323 14 15,0	14 1,6	— 13,4	N	104 28 10,5	28 10,6	+ 0,1
Sept. 15	6 53 13,1	1	277 19 54,6	19 42,4	— 12,2	N	109 37 8,5	37 8,0	— 0,5
16	7 42 2,8	1	290 33 33,2	33 21,1	— 12,1	S	109 18 40,3	18 38,5	— 1,8
17	8 31 24,9	1	303 55 16,7	55 3,7	— 13,0	S	108 1 26,0	1 30,9	+ 4 9
20	11 0 22,6	1	344 13 14,1	13 9,0	— 5,1	S	98 43 11,4	43 3,8	— 7,6
21	11 51 30,6	1,2	357 43 4,6	43 8 9	+ 4,3	S	94 13 8,6	13 6,2	— 2.4
22	12 42 52,5	2	11 21 13,9	21 13,3	— 0,6	S	89 22 58,7	22 57,0	— 1,7

Date	Madras Mean Time.	Limb Observed.	Observed A.R. of ☽'s Centre.	A.R. from Nautical Almanac.	Error of Tables.	Limb Observed.	Observed N.P.D. of ☽'s Centre.	N.P.D. from Nautical Almanac.	Error of Tables.
1831	*h. m. s.*		° *m. s.*	*m. s.*	*s.*		° ′ ″	′ ″	″
Oct. 14	6 22 17,7	1	298 9 49,7	9 36,3	— 13,4	S	108 53 10,1	53 7,9	— 2,2
17	8 48 41,1	1	337 49 6,4	49 0,2	— 6,2	S	100 47 18,9	47 22,2	+ 3,3
20	11 19 38,8	1	18 37 29,1	37 35,5	+ 6,4	S	86 46 43,1	46 38,9	— 4,2
21						S	81 50 44,9		
23	14 8 45,1	2	63 25 0,5	24 59,7	— 0,8				
25	16 8 13,1	2	95 20 3,0	20 1,3	— 1,7	S	70 7 29,7	7 21,5	— 8,2
29	19 49 19,6	2	154 43 47,5	43 47,5	— 0,0	S	78 13 16,6	13 23,9	+ 7,3
Nov. 19						S	75 23 25,0		
21	13 53 33,6	2	88 11 6,0	10 59,9	— 6,1	N	70 15 48,3	15 33,2	— 15,1
26	18 36 15,4	2	164 0 43,4	0 46,6	+ 3,2	S	80 45 37,5	45 43,9	+ 6,4
Dec. 11	5 20 46,9	1	339 54 15,9	54 11,1	— 4,8	S	100 41 7,4	41 8,0	+ 0,6
12	6 7 17,2	1	352 32 11,8	32 4,9	— 6,9	S	96 33 36,7	33 30,5	— 6,2
13	6 54 23,4	1	5 20 42,8	20 48,0	+ 5,2	S	91 58 50,3	58 34,7	— 15,6
14	7 43 5,1	1	18 32 35,7	32 40,2	+ 4,5	S	87 7 51,1	7 51,5	+ 0,4
15	8 34 15,4	1	32 21 48,9	21 44,7	— 4,2	S	82 15 59,4	15 49,8	— 9,6
16	9 28 40,3	1	47 0 10,4	0 10,3	— 0,1	S	77 41 55,4	41 55,7	+ 0,3
21	14 39 10,9	2	129 11 47,0	11 29,1	— 17,9	S	71 59 49,8	59 46,4	— 3,4
24	17 19 34,2	2	172 23 9,9	23 7,9	— 2,0	S	83 18 14,4	18 4,0	— 10,4

In computing the above, the semi-diameter and Parallax have been taken from the Nautical Almanac; for reducing the latter the ratio of the Polar and Equatoreal Axes has been assumed 299 : 300 whence we have the *angle of the vertical* = 5*m*. 0*s*. and the radius of the Earth = ,999825.

In the case of the Transit observations where the first or second limb of the Moon is observed, it is obvious that after applying the semi-diameter in A.R. we obtain the Right Ascension of the Moon's centre at the instant of the *first* or *second limb* transiting the Meridian; but with the Mural Circle we get the N.P.D. due to the moment of the Moon's *centre* transiting the Meridian to avoid therefore the inconvenience which would result from having the Right Ascension and North Polar Distance at two different instants of time, I have applied to the observed N.P.D. the change of the Moon's declination in the interval occupied by the Moon's semi-diameter to pass the Meridian. In a few cases however where the Moon was not observed with the Transit Instrument as well as when both limbs were observed, the N.P.D. set down is that for the moment of the Moon's centre transiting the Meridian.

Observation of the Eclipse of the Moon on the 26th February 1831.

	Sidereal time.	Mean time.	Observed by
	h. m. s.	*h. m. s.*	
Beginning of the Eclipse.....	7 11 45	8 48 50,3	T.
Shadow covers Gremaldus.....	7 21 20	8 58 23,7	T.

	Sidereal time.	Mean time.	Observed by
	h. m. s.	*h. m. s.*	
Shadow touches Tycho	7 28 49	9 5 51,5	R.
	7 29 6	9 6 8,5	T.
Shadow covers Tycho	7 30 35	9 7 37,2	T.
	7 30 36	9 7 38,2	R.
Shadow touches Copernicus	7 47 31	9 24 30,4	R.
	7 47 35	9 24 34,4	T.
Shadow covers Copernicus	7 52 33	9 29 31,6	R.
	7 52 40	9 29 38,6	T.
Shadow touches Aristarcus	7 55 53	9 32 51,1	R.
	7 56 1	9 32 59,1	T.
Shadow covers Aristarcus	7 59 20	9 36 17,2	T.
Shadow touches Mare Vaporium	8 1 59	9 38 55,7	T.
Shadow touches Mare Christium	8 39 35	10 16 25,9	R.
	8 40 0	10 16 50,8	T.
Shadow leaves Gremaldus	9 4 55	10 41 11,9	T.
Shadow leaves Tycho	9 19 13	10 55 57,4	T.
	9 19 35	10 56 19,3	R.
Shadow leaves Mare Christium	9 24 45	11 1 28,5	T.
	9 25 35	11 2 18,3	R.
End of Eclipse	10 8 25	11 45 1,4	R.
	10 8 55	11 45 31,3	T.

The above observations by T were made with the 5 feet Achromatic, with a power of about 40, those by R with a 46 Inch Achromatic power about 60 or 70.

Eclipses of Jupiter's Satellites observed in 1831.

March 18—Immersion of Jupiter's first Satellite was lost in consequence of my having removed my eye from the Telescope to explain to my Assistant the position of the Satellite, which was very indistinct in consequence of a thin haze, and Jupiter's proximity to the horizon ; I saw the Satellite at 16*h*. 51*m*. 54*s*. it had disappeared at 16*h*. 52*m*. 34*s*. I presume I am not 20*s*. in error in assuming it at 16*h*. 52*m*. 24*s*. Sidereal time or 17*h*. 9*m*. 15,7*s*. Mean time.

May 13—Immersion of Jupiter's first Satellite with 5 feet Achromatic power 150 at 17*h*. 12*m*. 57*s*. Sidereal time or 10*h*. 49*m*. 34,3*s*. Mean time.

Observations indifferent, in consequence of haze.

May 15—Emersion of Jupiter's third Satellite with 5 feet Achromatic

power 120 at 17*h*. 58*m*. 40*s*. Sidereal time or 14*h*. 17*m*. 19,8*s*. Mean time.

Indifferent, in consequence of haze.

Two Native Assistants did not see the emersion till 1 minute after the above time which I presume arises from their inexperience in this species of observation.

May 23—Immersion of Jupiter's second Satellite with 5 feet Achromatic power 120 at 18*h*. 37*m*. 9*s*. Sidereal time or 14*h*. 34*m*. 14,3*s*. Mean time.

Do. —Do. with 42 Inches Achromatic power 75 at 18*h*. 37*m*. 11*s*. Sidereal time or 14*h*. 34*m*. 16,3*s*. Mean time.

June 4—Immersion of Jupiter's first Satellite with 5 feet Achromatic power 120 at 18*h* 47*m*. 59*s*. Sidereal time or 13*h*. 57*m*. 50,6*s*. Mean time.

Do. —Do. with 42 Inches Achromatic power 75 at 18*h*. 47*m*. 57*s*. Sidereal time or 13*h*. 57*m*. 48,6*s*. Mean time.

Clear, observation good.

Aug. 30—Emersion of Jupiter's first Satellite with 5 feet Achromatic power 120 at 20*h*. 8*m*. 54*s*. Sidereal time or 9*h*. 36*m*. 28,6*s*. Mean time.

Aug. 30—Emersion of Jupiter's first Satellite with 42 Inches Achromatic power 75 at 20*h*. 8*m*. 48*s*. Sidereal time or 9*h*. 36*m*. 28,6*s*. Mean time.

Clear, observation good.

Sept. 14—Emersion of Jupiter's third Satellite with 42 Inches Achromatic power 75 at 22*h*. 4*m*. 58*s*. Sidereal time or 14*h*. 33*m*. 15,0*s*. Mean time.

Observation, satisfactory.

Do. —Emersion of Jupiter's second Satellite with 42 Inches Achromatic power 75 at 22*h*. 15*m*. 50*s*. Sidereal time or 10*h*. 44*m*. 5,2*s*. Mean time.

Sept 21:—Emersion of Jupiter's second Satellite with 42 Inches Achromatic power 75 at 0*h*. 19*m*. 2*s*. Sidereal time or 13*h*. 19*m*. 25,2*s*. Mean time.

Thin haze, but observation satisfactory.

Sept. 22—Emersion of Jupiter's first Satellite with 5 feet Achromatic power 150 at 21*h*. 54*m*. 36*s*. Sidereal time or 9*h*. 51*m*. 26,9*s*. Mean time.

Clear Moon light, observation good.

Sept. 29—Immersion of Jupiter's first Satellite with 42 Inches Achromatic power 75 at 0*h* 18*m*. 20*s*. Sidereal time or 11*h*. 47*m*. 26,0*s*. Mean time.

Oct. 20—Emersion of Jupiter's third Satellite with 5 feet Achromatic power 300 at 20*h*. 34*m*. 28*s*. Sidereal time or 6*h*. 41*m*. 26,8*s*. Mean time.

Do. —Do. with 42 Inches Achromatic power 75 at 20*h*. 34*m*. 49*s*. Sidereal time or 6*h*. 41*m*. 47,8*s*. Mean time.

Nov. 10—Emersion of Jupiter's second Satellite with 5 feet Achromatic power 150 at 22*h*. 46*m*. 10*s*. Sidereal time or 7*h*. 30*m*. 22,8*s*. Mean time.

Do. —Do. with 42 Inches Achromatic power 75 at 22*h*. 46*m*. 10*s*. Sidereal time or 7*h*. 30*m*. 22,8*s*. Mean time.

Dec. 2—Emersion of Jupiter's third Satellite with 5 feet Achrometic power 150 at 23*h*. 36*m*. 45*s*. Sidereal time or 6*h*. 54*m*. 20,1*s*. Mean time.

Do. —Do. with 42 Inches Achrometic power 120 at 23*h*. 37*m*. 24*s*. Sidereal time or 6*h*. 54*m*. 59,1*s*. Mean time.

In the absence of the Greenwich observations we will now compare the above times with the Mean times given in the Nautical Almanac for the purpose of finding the Longitude; accordingly we have the Longitude of Madras, as follows.

1831		1st Satellite. h. m. s.	2d Satellite. h. m. s.	3d Satellite. h. m. s.
May	13	5 21 44,3	———	———
	15	———	———	5 22 20,8
	23	———	5 21 44,3	———
June	4	20 40,6	———	———
July	13	21 6,7	———	———
August	30	20 59,6	———	———
September	14	———	20 53,2	———
	14	———	———	21 6,0
	21	———	20 54,2	———
	22	20 37,9	———	———
	29	20 57,0	———	———
October	20	———	———	21 24,3
November	10	———	21 15,8	———
December	2	———	———	23 49,6
Mean		5 21 1,0	5 21 11,9	5 22 10,2

Taking the Mean of the observations of the first and second Satellites, we have the Longitude of the Madras Observatory, 5*h*. 21*m*. 5,4*s*. differing somewhat less than a mile from the value assigned by Mr. Goldingham. Whilst upon the subject of Longitude, it will be as well here to give the observed transits of the Moon, and of Stars calumniating near thereto; the comparison of observations of this nature with the corresponding observations under other Meridians appears to be the best method yet employed for determining the difference of Longitude where the difference of Meridians is small; but in the present case, from the comparison of observations at Madras with those made in Europe results of second rate accuracy only must be expected.

		h.	m.	s.
Feb.	20—20 Orionis	4	47	6,96
	☽ 1 L	4	49	53,28
	1 *y* Orionis	4	55	9,47
	2 *y* Orionis	5	0	16,29
	21—☽ 1 L	5	50	52,90
	ν Orionis	5	58	5,97
	ξ Orionis	6	2	30,44
	η Geminorum	6	4	51,25
	22—*γ* Geminorum	6	27	42,62
	☽ 1 L	6	51	40,71
	23—☽ 1 L	7	51	39,56
	γ Cancri	8	32	58,37
	27—*σ* Leonis	11	11	26,88
	☽ 2 L	11	32	36,99
	β Virginis	11	40	55,48
	π Virginis	11	51	14,60
March	3—*λ* Virginis	14	11	6,93
	☽ 2 L	14	48	2,74
	f[1] Libræ	15	26	5,56
	5—*β* Scorpii	15	56	46,54
	ν Scorpii	16	3	19,94
	☽ 2 L	16	26	3,92
	21—*ν* Geminorum	6	18	24,19
	☽ 1 L	6	33	5,54
	ζ Geminorum	6	53	33,85
	22—K Geminorum	7	23	26,70
	☽ 1 L	7	33	11,11
	23—25 Cancri	8	15	44,87
	θ Cancri	8	21	26,67
	☽ 1 L	8	31	20,10
	54 Cancri	8	41	5,91
	π[3] Cancri	9	5	23,25

		h.	m.	s.
March	25—b^1 Leonis	10	15	51,77
	☽ 1 L	10	20	29,04
	ρ Leonis	10	23	25,20
	k Leonis	10	36	48,40
	26—c Leonis	10	51	32,05
	☽ 1 Limb	11	11	41,47
	27—ν Virginis	11	36	41,86
	π Virginis	11	51	44,30
	☽ 1 Limb	12	1	12,11
	35 Virginis	12	38	46,98
	29—a Virginis	13	15	50,37
	74 Virginis	13	22	43,54
	82 Virginis	13	32	17,19
	☽ 2 Limb	13	39	29,19
	y Virginis	13	59	33,66
	30—λ Virginis	14	9	30,13
	106 Virginis	14	19	18,96
	☽ 2 Limb	14	27	18,77
	ρ Libræ	14	36	11,06
	μ Libræ	14	39	35,22
	β Libræ	15	7	26,64
April	2—m Scorpii	16	31	20,25
	☽ 2 Limb	16	55	0,54
	η Ophiuchi	17	0	13,21
	20—☽ 1 Limb	9	11	1,72
	ξ Leonis	9	22	32,18
	o Leonis	9	31	49,80
	21—☽ 1 Limb	10	4	39,38
	i Leonis	10	22	40,81
	50 Leonis	10	29	21,90
	o^1 Sextantis	10	36	48,84
	22—48 Leonis	10	25	31,30
	34 Sextantis	10	33	26,43
	l Leonis	10	39	53,98
	☽ 1 Limb	10	55	59,43
	ι Leonis	11	14	39,40
	23—ξ^1 Virginis	11	36	7,82
	☽ 1 Limb	11	45	21,06
	r Virginis	12	0	34,89
	n Virginis	12	9	34,20
	25—k^1 Virginis	12	50	32,72
	☽ 1 Limb	13	20	54,92
	m Virginis	13	32	20,25
	p Virginis	13	45	37,15
	26—☽ Center	14	9	23,83
	μ Virginis	14	33	45,58
	27—☽ 2 Limb	14	58	23,57
	β Libræ	15	7	31,74
	ζ^1 Libræ	15	18	20,69

		h.	m.	s.
April	29—☽ 2 Limb	16	37	5,52
	ξ Serpentis	17	27	32,42
May	1—μ^1 Sagittarii	18	3	18,33
	☽ 2 Limb	18	19	58,86
	28 Sagittarii	18	35	47,73
	3—☽ 2 Limb	20	5	37,23
	π Capricorni	20	17	18,21
	20—☽ 1 Limb	11	30	56,54
	β Virginis	11	41	46,89
	A Virginis	11	46	16,17
	o Virginis	11	56	29,29
	21—r Virginis	12	0	56,17
	n Virginis	12	9	55,10
	☽ 1 Limb	12	19	16,62
	35 Virginis	12	39	9,64
	22—k^1 Virginis	12	50	52,24
	☽ 1 Limb	13	6	34,91
	65 Virginis	13	14	28,94
	m Virginis	13	32	40,16
	p Virginis	13	45	57,08
	23—88 Virginis	13	39	23,41
	☽ 1 Limb	13	53	37,98
	λ Virginis	14	9	54,29
	24—☽ 1 Limb	14	41	2,50
	δ Libræ	14	51	52,64
	ν^1 Libræ	14	57	8,50
	f^1 Libræ	15	24	52,57
	25—γ Libræ	15	26	0,46
	☽ 1 Limb	15	29	18,91
	ξ Libræ	15	55	0,84
	ν Scorpii	16	2	7,13
	27—η Ophiuchi	17	0	37,99
	☽ 2 Limb	17	11	33,50
	e^2 Ophiuchi	17	21	3,04
	ξ Serpentis	17	27	50,93
	29—☽ 2 Limb	18	55	49,14
	d Sagittarii	19	7	41,87
	e^2 Sagittarii	19	32	47,94
	31—a^2 Capricorni	20	8	37,85
	π Capricorni	20	17	35,20
	o Capricorni	20	30	22,86
	☽ 2 Limb	20	41	22,95
	η Capricorni	20	54	43,86
	ν Aquarii	21	0	20,32
June	1—☽ 2 Limb	21	33	54,65
	μ Capricorni	21	44	1,55
	20—☽ 1 Limb	14	26	1,75
	μ Virginis	14	34	22,80

		h.	m.	s.
June	20—ξ^2 Libræ	14	47	49,85
	23—☽ 2 Limb	21	18	19,82
	ϵ Capricorni	21	27	55,68
	γ Capricorni	21	31	2,16
	δ Capricorni	21	38	1,53
	29—☽ 2 Limb	22	10	36,40
	τ^1 Aquarii	22	38	3,97
	λ Aquarii	22	43	7,52
July	17—☽ 1 L	14	9	26,94
	ξ^2 Libræ	14	48	9,27
	δ Libræ	14	52	29,84
	29—☽ 2 Limb	0	31	35,95
	m Ceti	0	45	2,89
	ϵ Piscium	1	0	20,75
Sept.	15—☽ 1 Limb	18	29	28,26
	ν^1 Sagittarii	18	45	11,78
	ξ^1 Sagittarii	18	48	32,04
	17—☽ 1 Limb	20	15	51,82
	19 Capricorni	20	46	31,40
	21 Capricorni	20	52	37,64
	20—λ Aquarii	22	44	7,94
	81 Aquarii	22	53	56,69
	☽ 1 Limb	22	57	6,81
	21—n Piscium	23	40	36,60
	24 Piscium	23	45	36,08
	☽ Center	23	52	10,85
	22—33 Piscium	0	10	29,52
	t Piscium	0	18	7,02
	☽ 2 Limb	0	47	48,73
October	14—f Sagittarii	19	38	10,05
	14—57 Saigttarii	19	44	2,64
	☽ 1 Limb	19	53	14,24
	ρ Capricorni	20	20	53,12
	17—☽ 1 Limb	22	31	56,91
	λ Aquarii	22	45	34,12
	ψ^3 Aquarii	23	11	56,40
	23—γ Tauri	4	12	5,11
	☽ 2 Limb	4	16	39,81
	Aldebaran	4	28	8,30
	25—μ Geminorum	6	14	40,25
	ν Geminorum	6	20	51,52
	☽ 2 Limb	6	24	23,08
Nov.	21—ζ Tauri	5	30	3,99
	B Tauri	5	41	10,02
	χ^1 Orionis	5	46	53,63
	☽ 2 Limb	5	56	22,50
Dec.	12—☽ 1 Limb	23	32	0,63
	249 Piscium	23	53	56,81
	13—t Piscium	0	19	42,56
	☽ 1 Limb	0	23	15,67
	m Ceti	0	47	20,84
	14—189 Piscium	0	42	31,36
	27 Ceti	1	0	37,18
	☽ 1 Limb	1	16	3,72
	15—ξ^1 Ceti	2	7	5,75
	☽ 1 Limb	2	11	20,99
	24—☽ 2 Limb	11	33	51,26
	ξ^1 Virginis	11	39	52,12
	β Virginis	11	45	11,53
	π Virginis	11	54	30,48

Selecting from the above those of which corresponding observations have been made at the Greenwich Royal Observatory, we have

		Greenwich Observations.				Madras Observations.			
1831			h. m. s.	t m. s.		h. m. s.	τ m. s.	Δ m. s.	
March	23	Moon 1 L	8 45 15,92			8 31 20,10			
		π^2 Cancri	9 6 40,57	— 21 24,65		9 5 23,25	— 34 3,15	— 12 38,50	
May	25	γ Libræ	15 27 24,72	+ 14 12,78		15 26 0,46	+ 3 18,45	10 54,33	
		Moon 1 L	15 41 37,50			15 29 18,91			
June	20	Moon 1 L	14 36 51,54			14 26 1,75			
		ξ^2 Libræ	14 48 5,04	— 11 13,50		14 47 49,85	— 21 48,10	10 34,60	
October	23	Aldebaran	4 27 3,40	+ 2 35,58		4 28 8,30	— 11 28,49	14 4,07	
		Moon 2 L	4 29 38,98			4 16 39,81			
Dec.	12	Moon 1 L	23 41 15,68			23 32 0,63			
+ 1,1		249 Piscium	23 51 52,68	— 10 37,00		23 53 56,81	— 21 56,18	11 19,18	

In a similar manner we have:

Cambridge Observations.				Madras Observations.			
1831		h. m. s.	t m. s.	s.	h. m. s.	τ m. s.	t − τ m. s.
Mar. 23	Moon 1 Limb.	8 42 56,32			8 31 20,10		
	π Cancri.....	9 4 22,02	— 21 25,69	+ 0,10	9 5 23,25	— 34 3,15	— 12 37,46
May 25	γ Libræ.....	15 24 0,67	+ 14 11,86		15 26 0,46	— 3 18,45	10 53,41
	Moon 1 Limb.	15 38 12,54		+ 0,13	15 29 18,91		
June 20	Moon 1 Limb.	14 34 3,57			14 26 1,75		
	ξ² Libræ....	14 45 17,92	— 11 14,35	+ 0,73	14 47 49,85	— 21 48,10	10 33,75
Sept. 22	33 Piscium...	0 6 6,55	+ 49 34,83		0 10 29,52	— 37 19,18	12 15,65
	t Piscium....	0 13 44,17	+ 41 57,21	+ 0,10	0 18 7,02	— 29 41,69	12 15,52
	Moon 2 Limb.	0 55 41,38			0 47 48,73		
Oct. 17	Moon 1 Limb.	22 38 53,30			22 31 56,91		
	χ³ Aquarii...	†23 7 2,29	— 28 8,99	+ 0,98	23 11 56,40	— 39 59,46	11 50,47
Dec. 14	189 Piscium..	0 36 26,95	+ 45 35,38		0 42 31,36	— 33 32,32	12 3,06
	Moon 1 Limb.	1 22 2,33		+ 1,64	1 16 3,72		

The above observations at Greenwich and Cambridge are extracted from the Monthly reports of the proceedings of the Royal Astronomical Society; the former are deficient in not having the rate of the Clock annexed, but from the custom at Greenwich of keeping the daily rate of the Clock within one second, its omission altogether will not introduce an error exceeding 0,6*s*. of Longitude. In computing the Longitude from these observations I have assumed $x = -5h.\ 21m.$ and computed the values of ϵ* in preference to computing the horary motion for the middle of the times of passage, hence we find the Longitude of the Madras Observatory, from

	Greenwich Observations.		Cambridge Observations.	
	☽ 1 L.	☽ 2 L.	☽ 1 L.	☽ 2 L.
1831	h. m. s.	h. m. s.	h. m. s.	h. m. s.
March.....23	5 21 14,7	———	5 20 48,4	———
May.....25	20 54,2	———	20 26,2	———
June.....20	20 42,7	———	20 16,1	———
September.....22	———	———	———	5 20 52,5
October.....23	———	5 21 14,6	———	———
December.....12	20 35,7	———	———	———
December.....14	———	———	20 22,4	———

† This is not χ³ Aquarii probably ψ² Aquarii.

* See Mr. Baily's very excellent paper on this subject, inserted in the 2d Volume of the Memoirs of the Astronomical Society.

I have remarked at Page 69, that an *irradiation* is found to exist with every observer, as well as with the Telescope with which he observes; to obviate the error which would thus be introduced into the determination of Longitude by Lunar Observations, it is necessary to employ an equal number of observations of *each* limb, or which is the same thing, we must take the mean of the results from observations of the *first* and *second* limbs as being two independent results, without reference to the number of observations made of each, thus we obtain the Longitude of Madras, from

Greenwich.	Cambridge.
h. m. s.	*h. m. s.*
5 21 3,2	5 20 40,8

Mr. Airy states the Longitude of the Cambridge Observatory, to be 23,5*4*s. East of Greenwich, hence we have the Longitude of the Madras Observatory.

5 21 3,2 East of Greenwich { by Greenwich Observations.
5 21 4,34 ——— { by Cambridge Observations.

LATITUDE OF THE MADRAS OBSERVATORY.

To determine the Latitude, observations have been made with the Mural Circle, of the North Polar Distance of the image of Stars, as reflected from a trough of quicksilver; the Stars selected for this purpose are those which are situated within 30° of the Zenith, these being reduced to the mean places at the beginning of the year, and compared with the mean places, similarly deduced from the Observations by direct vision, give the following.

NAMES.	No. of Observations.	N.P.D. by Direct Vision.	Extreme Difference.	No. of Observations.	N.P.D. by Reflection.	Extreme Difference.	Latitude.
		° ′ ″	″		° ′ ″	″	° ′ ″
β Geminorum.....	33	61 34 21,66	4,24	7	272 17 20,12	5,06	13 4 9,11
γ Cancri.....	6	67 55 42,71	4,58	8	265 55 56,20	3,60	13 4 10,54
P Lyncis.....	5	52 29 15,74	1,69	8	281 22 25,29	3,70	13 4 9,48
κ Leonis.....	—	not observed		5	270 45 59,35	2,27	
λ Leonis.....	2	66 17 29,26	0,92	8	267 34 11,67	4,04	13 4 9,53
b Leonis Minor.....	5	52 51 23,35	2,03	8	281 0 14,19	4,05	13 4 11,23
ε Leonis.....	9	65 27 8,06	1,99	10	268 24 32,57	3,21	13 4 9,68
μ Leonis.....	5	63 12 2,65	0,60	5	270 39 39,84	5,86	13 4 8,75
d Leonis Minor.....	3	53 56 7,26	1,22	4	279 55 38,63	1,42	13 4 7,05

NAMES.	No. of Observations.	N.P.D. by Direct Vision.	Extreme Difference.	No. of Observations.	N.P.D. by Reflection.	Extreme Difference.	Latitude.
		° ′ ″	″		° ′ ″	″	° ′ ″
ζ Leonis	6	65 44 38,30	2,11	5	268 7 3,86	2,37	13 4 8,92
μ. Ursæ Major	5	47 39 13,35	3,60	3	286 12 26,75	3,84	13 4 9,95
f Leonis Minor	4	55 20 46,10	5,38	5	278 30 53,08	2,77	13 4 10,41
g Leonis Minor	5	52 25 47,77	3,15	3	281 25 53,35	4,30	13 4 9,44
l Leonis Minor	5	57 8 56,13	2,52	7	276 42 46,47	4,47	13 4 8,70
n Leonis Minor	6	58 25 43,96	4,13	5	275 25 56,36	2,92	13 4 9,84
o Leonis Minor	5	54 52 40,56	5,10	7	278 59 5,63	2,37	13 4 6,91
54 Leonis Minor	6	54 21 4,50	2,00	5	269 30 39,25	2,37	13 4 8,12
ξ Ursæ Major	4	57 31 13,81	4,05	8	276 20 27,39	4,83	13 4 9,40
ν Ursæ Major	1	55 59 6,74	0,00	7	277 52 32,98	3,19	13 4 10,14
h Comæ Ber	—	not observed		5	268 44 48,27	3,64	
e Comæ Ber	2	62 12 53,77	2,92	5	270 38 48,75	2,49	13 4 8,74
f Comæ Ber	5	62 57 44,41	2,28	5	270 53 52,78	0,89	13 4 11,20
c Comæ Ber	—	not observed		5	273 4 10,63	2,31	
a Comæ Ber	5	62 14 13,40	2,51	2	271 37 27,14	3,97	13 4 9,73
d Canum Ven	—	not observed		6	286 8 19,11	1,06	
k Comæ Ber	1	66 26 17,43	0,00	5	267 25 23,83	3,87	13 4 9,37
q Comæ Ber	2	67 50 0,43	3,81	5	266 1 40,90	3,21	13 4 9,33
a Canum Ven	9	50 46 3,20	3,99	7	283 5 36,23	4,76	13 4 10,28
h Canum Ven	2	48 31 46,48	1,14	7	285 19 36,82	3,09	13 4 8,85
l Bootis	—	not observed		3	272 10 50,45	3,42	
η Bootis	4	50 56 56,70	1,52	6	282 54 44,31	3,57	13 4 9,45
σ Bootis	5	59 31 3,40	4,80	5	274 19 40,92	2,81	13 4 7,84
34 Bootis	5	62 44 58,41	6,23	5	271 6 44,95	2,14	13 4 8,32
e Bootis	—	not observed		3	271 39 10,07	3,67	
β Bootis	5	48 56 19,00	3,93	5	284 55 27,33	2,01	13 4 6,83
δ Bootis	—	not observed		5	277 48 40,44	3,36	

Taking the Mean; from 160 Observations by direct vision combined with 171 by reflection we have the Latitude of the Madras Observatory, 13° 4′ 9″,21.

OBSERVATIONS OF THE COMET OF JANUARY 1831.

In the foregoing statements I have endeavoured to represent as nearly as the case would permit the degree of accuracy attained in each particular species of Observation, but in the present case, the Observations of an ill defined object, made with a Telescope supported upon a wooden stand, and that too in the open air; subject to flexure from its own weight, and to tremor from every breath of air which may happen to blow, render it desireable that the whole of the particulars of each observation should be stated, accordingly the following is copied from the book "Miscellaneous Observations."

1831, 7th January at 4*h*. 50*m*. A. M. Saw a Comet towards the East about 20 degrees high but approaching twilight prevented observation.

8th January, 5*h*. A. M. Adjusted the five feet Achromatic by Dollond as an Equatoreal, saw the Comet with a power of 60 but it was too faint to allow the field being illuminated, the following observations were made, at the time of its occupying the centre of the field of view.

	Sidereal Time.	Horary Circle.	Declination Circle.	Remarks.
	h. m. s.	*h. m. s.*	° ′	
Comet.....	12 52 0	4 36 0	11 50 S.	Very faint, tail 4° long observations not to be depended upon to 5*m*.
	13 2 0	4 25 30	11 43 —	
Antares.....	12 58 0	3 19 0	———	
	13 5 40	3 12 0	25 15 S.	

9th January at 5*h*. A. M.

	Sidereal Time.	Horary Circle.	Declination Circle.	Remarks.
	h. m. s.	*h. m. s.*	° ′ ″	
Comet.....	12 22 41	6 58 45	10 52 10 S.	The Comet appeared very distinct notwithstanding its being situated within 30° of the Moon.
	12 24 54	7 0 50	10 52 30 —	
	12 25 59	7 1 58		
	12 26 48	7 2 50		
η Serpentis.....	12 31 53	7 32 0	14 33 30 S.	
	12 34 21	7 34 20		The wires did not require illumination.
	12 35 50	7 35 55	14 33 20 —	

1831, January 10.—In consequence of the difficulty attending the adjustment of the Instrument as an Equatoreal I have availed myself of a suspension spirit level which belongs to the Telescope, to adjust it as an Altitude and Azimuth Instrument; the error of adjustment of the vertical Axis cannot I imagine exceed 20 or 30 seconds.

1831	Sidereal Time.	Altitude.	Azimuth from North Meridian.	Azimuth from South.
	h. m. s.	° ′ ″	*h. m. s.*	° ′ ″
10th January.....	12 11 14	9 25 30	6 44 10	78 57 30
	12 14 30	10 9 0	6 45 5	78 43 45
	12 17 27	10 53 0	6 45 50	78 30 00
Comet.....	12 19 44	11 24 30	6 46 35	78 21 15
	12 21 18	11 46 10	6 46 55	78 16 15
	12 23 52	12 24 0	6 47 45	78 3 45

1831	Sidereal Time. h. m. s.	Altitude. ° ′ ″	Azimuth from North Meridian. h. m. s.	Azimuth from South. ° ′ ″
10th January.....	12 33 18	11 38 40	6 52 6	76 58 30
η Ophiuchi.....	12 41 54	14 47 00	7 3 30	74 7 30
	12 45 21	17 25 0	6 54 5	76 28 45
Comet.....	12 52 47	19 11 0	6 56 35	75 51 15
	12 54 46	19 36 0	6 57 5	75 43 45
	12 56 25	19 59 0	6 57 45	75 33 45
	12 59 56	23 56 0	7 22 45	69 18 45
η Ophiuchi.....	13 1 54	24 22 30	7 23 30	69 7 30
	13 3 37	24 45 0	7 24 0	69 0 00
	13 6 24	25 23 30	7 25 20	68 40 00
11th January...	Clouds prevented any Observation.			
12th January.....	12 22 7	14 6 0	7 8 20	72 55 00
Comet.....	12 28 55	15 44 0	7 10 25	72 23 45
	12 43 47	19 9 0	7 15 5	71 13 45
	12 45 32	20 44 30	7 38 12	65 27 0
η Ophiuchi.....	12 59 23	23 50 30	7 43 45	64 3 45
	13 1 23	24 16 30	7 44 15	63 56 15
	13 13 12	26 55 0	7 49 35	62 36 15
13th January.....	12 56 41	23 11 30	7 13 55	71 31 15
	13 0 51	24 10 30	7 15 30	71 7 30
	13 3 56	24 53 30	7 16 25	70 53 45
Comet.....	13 6 13	25 24 40	7 17 20	70 40 00
	13 10 0	26 16 20	7 18 50	70 32 30
13th January.....	13 15 20	27 24 0	7 44 25	63 53 45
	13 17 16	27 48 0	7 45 25	63 38 45
η Ophiuchi.....	13 18 29	28 5 0	7 45 55	63 31 15
	13 20 1	28 25 0	7 46 45	63 18 45
	13 21 43	28 47 0	7 47 35	63 6 15
14th January.....	12 44 1	21 17 30	7 14 10	71 27 30
	12 47 19	22 3 30	7 15 20	71 10 00
	12 49 11	22 30 0	7 16 20	70 55 00
Comet.....	12 52 24	23 15 30	7 17 0	70 45 00
	12 55 20	23 56 30	7 18 10	70 27 30
	12 58 26	23 39 0	7 42 0	64 30 0
η Ophiuchi.....	13 1 0	24 14 30	7 43 0	64 15 0
	Flying Clouds but observations good.			

1831	Sidereal Time. h. m. s.	Altitude. ° ′ ″	Azimuth from North Meridian. h. m. s.	Azimuth from South. ° ′ ″
15th January.....	12 45 48	22 45 0	7 19 30	70 7 30
	12 47 29	23 9 0	7 20 0	70 0 00
	12 48 30	23 22 40	7 20 15	69 56 15
Comet.....	12 49 33	23 37 0	7 20 50	69 47 30
	12 50 42	23 54 0	7 21 5	69 43 45
	12 53 9	22 30 0	7 44 10	63 57 30
	12 54 0	22 42 0	7 44 35	63 51 15
η Ophiuchi.....	12 55 6	22 56 0	7 44 55	63 46 15
	12 56 8	23 10 0	7 45 30	63 37 30
	12 57 12	23 23 30	7 45 55	63 31 15
16th January.....	12 28 17	19 43 30	7 12 50	71 47 30
	12 29 40	19 43 1	7 13 15	71 41 15
Comet.....	12 30 55	20 20 0	7 13 45	71 33 45
	12 32 14	20 38 0	7 14 10	71 27 30
	12 33 53	21 3 0	7 14 50	71 17 30
	12 37 16	18 58 0	7 37 35	65 36 15
	12 38 10	19 9 0	7 37 53	65 31 15
η Ophiuchi.....	12 39 10	19 23 0	7 38 20	65 25 00
	12 40 0	19 36 0	7 38 40	65 20 00
	12 41 23	19 53 30	7 39 10	65 12 30
19th January.....	12 39 4	25 29 0	6 50 20	77 25 0
	12 41 39	26 6 0	6 51 10	77 12 30
	12 44 28	26 47 0	6 52 10	76 57 30
Comet.....	12 48 17	27 38 0	6 53 20	76 40 00
	12 50 39	28 16 0	6 54 0	76 30 00
	12 53 32	32 6 0	7 8 30	72 52 30
	12 55 27	32 29 30	7 9 20	72 40 00
ζ Ophiuchi.....	12 57 9	32 53 0	7 10 10	72 27 30
	12 58 41	33 17 0	7 11 0	72 15 00
	13 0 28	33 35 0	7 11 40	72 5 00
20th January.....	12 55 11	30 24 0	7 7 40	73 5 00
	12 57 37	30 57 30	7 8 35	72 51 15
Comet.....	12 59 28	31 23 0	7 9 20	72 40 00
	13 1 3	31 44 30	7 10 10	72 27 30
	13 3 47	32 22 0	7 11 20	72 10 00
	13 6 24	34 57 0	7 25 35	68 36 15
ζ Ophiuchi.....	13 7 24	35 12 0	7 26 0	68 30 00
	13 8 24	35 24 30	7 26 30	68 22 30

1831	Sidereal Time. h. m. s.	Altitude. ° ′ ″	Azimuth from North Meridian. h. m. s.	Azimuth from South. ° ′ ″
20th January.....	13 9 28	35 38 30	7 27 0	68 15 00
	13 10 32	35 54. 0	7 27 40	68 5 00
23d January.....	13 16 0	38 43 30	7 31 5	67 13 45
	13 18 10	39 12 0	7 32 20	66 55 00
	13 19 43	39 33 30	7 33 0	66 45 00
Comet.....	13 21 2	39 52 0	7 33 50	66 32 30
	13 22 39	40 14 30	7 34 45	66 18 45
	13 26 33	39 28 30	7 48 50	62 47 30
	13 28 14	39 53 30	7 49 35	62 36 15
ζ Ophiuchi.....	13 29 50	40 12 0	7 50 40	62 20 00
	13 31 27	40 34 30	7 51 45	62 3 45
	13 33 6	40 55 30	7 52 25	61 53 45

It is necessary I should here remark that the Instrument was removed every day after the observations were made, to the inside of the Observatory and brought out again early in the morning for adjustment previously to the above observations being made, in performing the adjustment, no pains was taken to adjust the Azimuth Circle, which will account for the changes which are found from day to day in the Index Error. The Sidereal time set down is the *true* Sidereal time, found every morning by the Transit of Spica Virginis over the wires of the Mural Circle, the Transit Instrument not having been erected at this time. Employing the Sidereal time in conjunction with the Apparent Places of η and ζ Ophiuchi computed from the Astronomical Society's Tables we obtain the *true* Altitude and Azimuth, which being compared with the *observed* (the Altitude being corrected for refraction) gives the Index Error in Altitude and Azimuth which we can now apply to the observed Altitude and Azimuth of the Comet as follows.

1831	Sidereal Time. h. m. s.	Observed Altitude. ° ′ ″	Refraction. ′ ″	Index Error. ′ ″	True Altitude. ° ′ ″	Observed Azimuth. ° ′ ″	Index Error. ° ′ ″	True Azimuth. ° ′ ″
January 10	12 17 59	11 0 22	— 4 42	+ 3 56	10 59 36	78 28 46	— 3 8 16	75 20 30
	12 52 20	19 2. 45	— 2. 42	+ 3 56	19 3 59	75 54. 21	— 3 8 16	72 46 5
12	12 25 31	14 55 00	— 3 30	+ 2 43	14 54 13	72 39 23	+ 2 10 30	74 49 53
	12 43 57	19 9 00	— 2 42	+ 2 43	19 9 1	71 13 45	+ 2 10 30	73 24 15
13	13 3 32	24 47 18	— 2 2	+ 0 44	24 46 0	70 57 0	+ 0 43 12	71 40 12
14	12 49 39	22 36 36	— 2 17	+ 0 43	22 35 2	70 57 0	+ 1 50 48	72 47 48
15	12 48 24	23 21 33	— 2 9	— 0 53	23 18 30	69 55 0	+ 2 55 42	72 50 42
16	12 31 0	20 17 30	— 2 32	— 1 55	20 13 3	71 33 30	+ 2 43 52	74 17 22
19	12 44 49	26 51 12	— 1 51	+ 1 20	26 50 41	76 57 0	— 3 58 57	72 58 03
21	12 59 25	31 22 12	— 1 32	— 5 11	31 15 29	72 38 45	— 1 10 0	71 28 45
23	13 19 31	39 31 6	— 1 9	— 7 53	39 22. 4	66 45 0	+ 1 59 47	68 44 47

From the true Altitudes and Azimuths we obtain as follows.

1831	Mean Time h. m. s.	A.R. h. m. s.	N.P.D. ° ′ ″	REMARKS.
January..... 8	17 45 47,9	17 29 27,0	102 34 10	
9	17 10 2,8	17 24 44,0	101 49 15	
10	16 59 1,7	17 20 49,0	101 28 12	
10	17 33 17,0	17 20 41,0	101 28 15	
12	16 58 40,7	17 12 30,0	100 50 41	
12	17 17 3,6	17 12 37,5	100 52 25	
13	17 32 30,5	17 8 35,0	100 34 12	
14	17 14 52,8	17 4 28,0	100 19 17	
15	17 9 42,3	17 0 29,5	100 2 36	
16	16 48 25,3	16 56 43,3	99 45 4	
19	16 50 24,0	16 43 43,5	98 46 1	
20	17 1 1,9	16 39 33,0	98 27 47	
23	17 9 16,8	16 25 57,0	97 27 39	
February.....19	14 52 48,0	12 49 7,0	80 7 53,7	Very faint.
20	14 38 36,5	12 38 49,9	79 23 52,6	do. do.

The prevalence of haze and the presence of the Moon, added to the diminished brightness of the Comet, prevented observation after the 23d of January till the 19th February, on the latter day as well as on the 20th I was fortunate enough to obtain meridional observations with the Transit Instrument and Mural Circle, but these being made without illuminating the wires, in consequence of the extreme faintness of the Comet, cannot be depended upon to 1 or 2 minutes of space.

PLACES OF THE FIXED STARS.

I had originally intended to complete the Catalogue of 2881 Stars, before submitting to the notice of Astronomers any determination of the places of the fixed Stars, but finding on comparison with the Greenwich and Astronomical Society's Catalogue, discordances greater than can be reasonably accounted for from errors of observation, I have thought it adviseable at once to offer the places of that portion of the Catalogue which is determined from the observations of 1831, together with the comparisons above named; I have added a column "Extreme difference" which with the number of observations will assist in forming an estimate of the probable error to which each result is liable; the annual variations, (those which have been employed) are copied from the Astronomical Society's Catalogue.

Right Ascension of Stars from the Madras Catalogue compared with the Greenwich, and Astronomical Society's Catalogue.

No.	Mag.	NAMES.	No. of Observations.	Observed A.R. reduced to Jan. 1, 1831.	Difference of Extremes.	Greenwich Catalogue	A.S. Catalogue.	Difference from Greenwich.	Difference from A.S.	Annual Variation.
				h. m. s.	*s.*	*m. s.*	*m. s.*	*s.*	*s.*	*s.*
1	2,3	β Cassiopeæ....	6	0 0 12,43	0,18	0 12,59	0 11,60	— 0,16	+ 0,83	+ 3,124
2	4	ε Phœnicis....	6	0 0 48,75	0,73		0 48,44		+ 0,31	3,063
3	5	B Andromedæ..	5	0 1 33,96	0,32		1 33,91		+ 0,05	3,077
4	5,6	α^2 App. Sculp...	6	0 2 58,71	0,78		2 58,59		+ 0,12	3,059
5	2,3	γ Pegasi..	12	0 4 32,59	0,46	4 32,63	4 32,43	— 0,04	+ 0,16	3,075
6	5	θ Andromedæ..	6	0 8 17,16	0,29		8 16,37		+ 0,79	3,105
7	6,7	33 Piscium.....	6	0 9 7,24	0,35		9 6,82		+ 0,42	3,069
8	4	ι Ceti.....	6	0 10 49,08	0,16	10 49,09	10 48,70	— 0,01	+ 0,38	3,057
9	5	ζ Toucanæ	6	0 11 12,88	0,93		11 9,90		+ 2,98	2,923
10	5,6	d Piscium.....	4	0 11 54,39	0,13	11 54,52	11 54,75	— 0,13	— 0,36	3,077
11	6	9 Ceti.....	6	0 14 12,05	0,30		14 12,17		— 0,12	3,049
12	6	t Piscium.....	7	0 16 44,56	0,47		16 44,12		+ 0,44	3,070
13	5	κ Phœnicis	5	0 17 52,64	0,24		17 51,33		+ 1,31	2,966
14	2	α Phœnicis	6	0 17 54,89	1,08		17 54,24		+ 0,65	2,970
15	6	48 Piscium.....	6	0 19 26,73	0,58		19 25,86		+ 0,87	3,099
16	5	λ Cassiopeæ....	6	0 22 29,61	0,34		22 28,75		+ 0,86	3,215
17	5	λ^1 Phœnicis....	6	0 23 14,73	0,23		23 13,77		+ 0,96	2,909
18	4	κ Cassiopeæ....	5	0 23 27,57	0,50	23 27,47	23 26,47	+ 0,10	+ 1,10	3,324
19	4	β^1 Toucanæ....	6	0 23 45,57	0,77		23 45,63		— 0,06	2,786
20	4	ζ Cassiopeæ....	7	0 27 35,99	0,25	27 35,90	27 35,58	+ 0,09	+ 0,41	3,280
21	4,5	π Andromedæ..	6	0 27 52,52	0,44	27 52,54	27 52,60	— 0,02	— 0,08	3,172
22	6	53 Piscium.....	5	0 27 59,75	0,18		27 59,05		+ 0,70	3,109
23	4	ε Andromedæ..	6	0 29 38,57	0,14	29 38,65	29 38,08	— 0,08	+ 0,49	3,161
24	3	δ Andromedæ..	6	0 30 18,57	0,44	30 18,64	30 18,15	— 0,07	+ 0,42	3,169
25	3	α Cassiopeæ....	12	0 30 58,09	0,54	30 57,93	30 57,43	+ 0,16	+ 0,66	3,330
26	6,7	* Ceti.....	5	0 32 6,33	0,42		32 5,84		+ 0,49	3,051
27	5	μ Phœnicis	6	0 33 19,44	0,23		33 19,42		+ 0,02	2,861
28	5	π Cassiopeæ....	6	0 34 9,11	0,33		34 8,30		+ 0,81	3,274
29	2,3	β Ceti.....	7	0 35 6,18	0,35	35 6,27	35 6,23	— 0,09	— 0,05	2,998
30	5	ϕ^1 Ceti.....	5	0 35 39,79	0,49		35 39,61		+ 0,18	3,026
31	5	η Phœnicis	4	0 35 44,13	0,44		35 43,07		+ 1,06	2,731
32	4	ζ Andromedæ..	6	0 38 23,78	0,31	38 23,85	38 23,84	— 0,07	— 0,06	3,164
33	4	η Cassiopeæ....	4	0 38 55,79	0,10	38 55,63	38 54,73	+ 0,16	+ 1,06	3,533
34	5	δ Piscium.	6	0 39 55,12	0,36		39 55,20		— 0,08	3,095
35	4	ν Andromedæ..	5	0 40 31,52	0,17	40 31,57	40 30,99	— 0,05	+ 0,53	3,266
36	6	i Piscium.....	6	0 40 49,63	0,53		40 48,96		+ 0,67	3,187
37	5	m Ceti.....	7	0 44 22,58	0,38	44 22,62	44 22,66	— 0,04	— 0,08	3,059
38	6	36 Andromedæ.	6	0 45 56,06	0,43		45 55,76		+ 0,30	3,179
39	3	γ Cassiopeæ....	5	0 46 34,32	0,25	46 34,10	46 33,26	+ 0,22	+ 1,06	3,531
40	4	μ Andromedæ..	5	0 47 24,06	0,31	47 24,11	47 23,81	— 0,05	+ 0,25	3,359
41	5	η Andromedæ..	6	0 48 12,02	0,19		48 11,16		+ 0,86	3,183
42	5	α App. Sculp...	6	0 50 27,41	0,30		50 27,46		— 0,05	2,898
43	7	Piscium.....	3	0 51 4,62	0,12		51 3,94		+ 0,68	3,097

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				h. m. s.	s.	m. s.	m. s.	s.	s.	s.
44	6,7	Piscium.....	5	0 53 42,66	0,22		53 42,10		+ 0,56	+ 3,111
45	4	e Piscium.....	6	0 54 10,85	0,20	54 10,85	54 10,90	— 0,00	— 0,05	3,106
46	6	27 Ceti.....	4	0 57 9,06	0,63		57 8,76		+ 0,30	3,005
47	6	28 Ceti.....	8	0 57 36,56	0,77		57 36,48		+ 0,08	3,005
48	3,4	β Phœnicis	6	0 58 31,96	0,37		58 31,80		+ 0,16	2,698
49	6,7	88 Piscium.....	6	1 5 55,46	0,45		5 54,87		+ 0,59	3,108
50	6	38 Ceti.....	7	1 6 11,86	0,23		6 11,65		+ 0,21	3,056
51	5,6	ν Piscium.....	6	1 10 11,62	0,37		10 11,55		+ 0,07	3,268
52	5	ξ Andromedæ..	6	1 12 25,62	0,39		12 25,06		+ 0,56	3,478
53	4,5	ψ Cassiopeæ....	6	1 14 6,22	0,43	14 6,37	14 5,35	— 0,15	+ 0,87	4,079
54	5	Phœnicis	6	1 17 11,68	0,30		17 11,62		+ 0,06	2,665
55	5	c Ceti.....	6	1 17 18,68	0,19		17 18,46		+ 0,22	2,946
56	3	γ Phœnicis.....	6	1 21 1,24	0,37		21 0,58		+ 0,66	2,619
57	5	μ Piscium.....	5	1 21 20,41	0,51	21 20,21	21 19,98	+ 0,20	+ 0,43	3,111
58	4	η Piscium.....	6	1 22 27,27	0,15	22 27,16	22 27,08	+ 0,11	+ 0,19	3,189
59	4	δ Phœnicis.. ..	5	1 24 12,50	0,14		24 12,20		+ 0,30	2,497
60	5	ν Andromedæ..	6	1 26 54,68	0,27		26 54,01		+ 0,67	3,491
61	3,4	R[a] Andromedæ.	6	1 27 39,73	0,47	27 39,66	27 39,32	+ 0,07	+ 0,41	3,617
62	6	π Piscium.....	4	1 28 9,02	0,12	28 9,01	28 8,73	+ 0,01	+ 0,29	3,168
63	1	α Eridani.....	5	1 31 24,96	0,22		31 24,27		+ 0,69	2,235
64	5	ν Piscium.....	6	1 32 38,46	0,31	32 38,75	32 38,49	— 0,29	— 0,03	3,111
65	5	54 Andromedæ..	5	1 33 6,84	0,21		33 6,66		+ 0,18	3,693
66	5,6	107 Piscium....	4	1 33 20,16	0,30		33 19,94		+ 0,22	3,255
67	3,4	τ Ceti.....	5	1 36 13,20	0,30	36 13,23	36 12,86	— 0,03	+ 0,34	2,779
68	5	o Piscium.....	6	1 36 28,70	0,40	36 28,67	36 28,55	+ 0,03	+ 0,15	3,148
69	5	ε App. Sculp..	6	1 37 43,98	0,33		37 43,21		+ 0,77	2,800
70	5	χ[a] Ceti.....	5	1 41 17,35	0,61		41 16,45		+ 0,90	2,952
71	3,4	ε Cassiopeæ....	6	1 42 19,92	0,33	49 19,30	42 19,28	+ 0,62	+ 0,64	4,191
72	3	ζ Ceti.....	6	1 43 7,30	0,20	43 7,40	43 6,86	— 0,10	+ 0,44	2,953
73	3,4	α Trianguli....	6	1 43 28,20	0,31	43 28,13	43 27,84	+ 0,07	+ 0,36	3,388
74	4,5	γ Arietis.....	5	1 44 16,30	0,36	44 16,32	44 16,24	— 0,02	+ 0,06	3,264
75	5	φ Phœnicis.....	6	1 47 21,28	0,36		47 21,27		+ 0,01	2,499
76	5	48 Cassiopeæ	4	1 48 13,41	0,28		48 13,42		— 0,01	4,744
77	4,5	50 Cassiopeæ	4	1 49 10,30	0,46	49 10,55	49 9,32	— 0,25	+ 0,98	4,908
78	4	χ Eridani.....	6	1 49 22,85	0,55		49 21,59		+ 1,26	2,270
79	4,5	ν[2] Ceti.....	6	1 52 2,68	0,33	52 2,54	52 2,18	+ 0,14	+ 0,50	2,816
80	5	α Piscium.....	6	1 53 18,59	0,26	53 18,56	53 18,64	+ 0,03	— 0,05	3,090
81	5	χ Phœnicis.....	6	1 54 55,57	0,96		54 55,92		— 0,35	2,414
82	3	α Arietis.....	10	1 57 39,79	0,45	57 39,83	57 39,46	— 0,04	+ 0,33	3,342
83	4	β Trianguli	6	1 59 30,83	0,52	59 30,82	59 30,97	+ 0,01	— 0,14	3,520
84	5,6	14 Arietis.....	6	1 59 49,32	0,27		59 49,09		+ 0,23	3,381
85	6,7	62 Ceti.....	3	2 0 52,12	0,66		0 51,96		+ 0,16	3,108
86	6	η Arietis.....	3	2 3 21,39	0,16		3 20,78		+ 0,61	3,323
87	7	19 Arietis.....	7	2 3 51,06	0,20	3 50,99	3 50,37	+ 0,07	+ 0,69	3,245
88	5	ξ[1] Ceti.....	7	2 4 3,24	0,36	4 3,30	4 2,67	— 0,06	+ 0,57	3,165
89	6	Ceti.....	6	2 9 15,02	0,60		9 14,33		+ 0,69	3,080

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				h. m. s.	*s.*	*m. s.*	*m. s.*	*s.*	*s.*	*s.*
90	4	ϕ Eridani.....	6	2 10 28,41	0,40		10 27,98		+ 0,43	+ 2,136
91	5	ι Persei.....	6	2 10 38,13	0,44		10 37,82		+ 0,31	4,100
92	4,5	Cassiopeæ....	4	2 15 15,71	1,07	15 15,43	15 15,69	+ 0,28	+ 0,02	4,788
93	5	ρ Ceti.....	6	2 17 47,44	0,26		17 47,23		+ 0,21	2,893
94	4,5	κ Eridani.....	4	2 20 47,43	0,54		20 45,40		+ 2,03	2,199
95	5	σ Ceti.....	6	2 24 4,97	0,48		24 4,69		+ 0,28	2,843
96	4,5	ν Ceti.....	6	2 27 0,86	0,35	27 0,88	27 0,40	— 0,02	+ 0,46	3,136
97	6,7	Ceti.....	6	2 27 38,51	0,27		27 38,36		+ 0,15	3,166
98	4	δ Ceti.....	6	2 30 49,75	0,31	30 49,75	30 49,71	0,00	+ 0,04	3,062
99	4,5	ϵ Ceti.....	6	2 31 23,59	0,29	31 23,70	31 23,52	— 0,11	+ 0,07	2,885
100	3	γ Ceti.....	6	2 34 33,00	0,25	34 33,15	34 32,87	— 0,15	+ 0,13	3,105
101	4	μ Ceti.....	6	2 35 49,09	0,19	35 49,02	35 48,46	+ 0,07	+ 0,63	3,207
102	4	π Ceti.....	6	2 36 5,01	0,32	36 4,94	36 4,61	+ 0,07	+ 0,40	2,849
103	3	c Arietis.....	3	2 40 3,27	0,15		40 3,14		+ 0,13	3,497
104	5	υ Fornacis.....	5	2 41 53,12	0,48		41 53,35		— 0,23	2,388
105	5	τ Persei.....	6	2 42 19,59	0,58	42 19,36	42 18,81	+ 0,23	+ 0,78	4,182
106	3	η Eridani.....	6	2 48 10,53	0,25	48 10,65	48 10,70	— 0,12	— 0,17	2,917
107	5	ϵ Arietis.....	6	2 49 33,89	0,08	49 33,86	49 33,57	+ 0,03	+ 0,32	3,408
108	4	γ Persei.....	6	2 52 36,52	0,83	52 36,33	52 36,00	+ 0,19	+ 0,52	4,273
109	2,3	α Ceti.....	9	2 53 27,23	0,14	53 27,20	53 27,02	+ 0,03	+ 0,21	3,123
110	4	ρ Persei.....	5	2 54 22,44	0,28	54 22,48	54 21,98	+ 0,04	+ 0,46	3,792
111	5	ρ^2 Eridani.....	3	2 54 24,80	0,51		54 24,66		+ 0,14	2,933
112	2,3	β Persei.....	5	2 57 12,17	0,42	57 12,11	57 11,57	+ 0,06	+ 0,60	3,859
113	5	κ Persei.....	6	2 58 8,01	0,76		58 7,55		+ 0,46	3,979
114	4	δ Arietis.....	6	3 1 58,76	0,23	1 58,69	1 58,63	+ 0,07	+ 0,13	3,398
115	3,4	12 Eridani.....	6	3 4 53,64	0,28	4 53,85	4 54,03	— 0,21	— 0,39	2,561
116	4	ζ Eridani.....	5	3 7 37,76	0,33	7 37,76	7 37,58	— 0,00	+ 0,18	2,906
117	2,3	α Persei.....	8	3 12 17,83	0,41	12 17,92	12 17,55	— 0,09	+ 0,28	4,221
118	4	e Eridani.....	6	3 13 11,08	0,47		13 2,43		+ 8,65	2,114
119	4	* Camelopard..	6	3 15 27,21	0,36	15 26,73	15 26,76	+ 0,48	+ 0,45	4,765
120	5	σ Persei.....	6	3 18 41,81	0,37		18 42,42		— 0,61	4,178
121	4,5	17 Eridani.....	6	3 22 14,26	0,26	22 14,34	22 14,22	— 0,08	+ 0,04	2,966
122	5	Z Eridani.....	3	3 24 12,27	0,18		24 12,28		— 0,01	2,134
123	5	ψ Persei.....	6	3 24 31,14	0,24		24 30,38		+ 0,76	4,208
124	4	t^2 Eridani.....	6	3 26 19,52	0,37		26 19,33		+ 0,19	2,641
125	5	E Tauri.....	4	3 28 15,45	0,53		28 15,35		+ 0,10	3,065
126	3,4	δ Persei.....	6	3 30 55,65	0,34	30 55,55	30 55,55	+ 0,10	+ 0,10	4,217
127	5	y Eridani.....	5	3 31 1,99	0,41		31 2,06		— 0,07	2,149
128	4,5	ν Persei.....	5	3 33 44,46	0,24	33 44,39	33 43,45	+ 0,07	+ 1,01	4,035
129	4,5	b Pleiadum....	3	3 34 51,47	0,22	34 51,21	34 51,05	+ 0,26	+ 0,42	3,538
130	5	e Pleiadum....	6	3 35 9,87	0,15	35 9,83	35 9,33	+ 0,04	+ 0,54	3,546
131	3	η Tauri.....	3	3 37 27,22	0,19	37 27,11	37 26,73	+ 0,11	+ 0,49	3,542
132	5	f Pleiadum....	3	3 39 7,44	0,47		39 7,17		+ 0,27	3,543
133	5	m^1 Eridani.....	6	3 39 34,85	0,33		39 34,73		+ 0,12	2,587
134	5	g Eridani.....	5	3 43 7,70	0,37		43 8,25		— 0,55	2,244
135	3,4	ζ Persei.....	6	3 43 31,62	0,17	43 31,61	43 31,33	+ 0,01	+ 0,29	3,742

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				h. m. s.	*s.*	*m. s.*	*m. s.*	*s.*	*s.*	*s.*
136	5	ι Eridani.....	5	3 47 12,54	0,31		47 12,75		— 0,21	+ 2,278
137	5	ξ Persei.....	6	3 48 1,29	0,33		48 0,51		+ 0,78	3,861
138	4	λ Tauri.....	6	3 51 19,66	0,58	51 19,57	51 19,05	+ 0,09	+ 0,61	3,309
139	5	k Eridani.....	4	3 52 43,53	0,12		52 43,13		+ 0,40	2,551
140	5	A[1] Tauri.....	6	3 54 42,90	0,93	54 42,96	54 42,60	— 0,06	+ 0,30	3,520
141	5	c Persei.....	4	3 56 25,49	0,66		56 24,87		+ 0,62	4,308
142	5	γ Reticuli.....	5	3 58 28,57	0,25		58 26,48		+ 2,09	0,841
143	4,5	μ Persei.....	5	4 2 31,12	0,44	2 31,09	2 30,98	+ 0,03	+ 0,14	4,360
144	4,5	o Eridani.....	6	4 3 37,24	0,60	3 37,27	3 36,68	— 0,03	+ 0,56	2,919
145	5	b Persei.....	4	4 5 34,01	0,28		5 33,56		+ 0,45	4,459
146	5	α Horologii.....	5	4 8 24,34	0,72		8 24,00		+ 0,34	1,978
147	3,4	γ Tauri.....	6	4 10 11,22	0,21	10 11,03	10 10,84	+ 0,19	+ 0,38	3,390
148	3,4	X Eridani.....	5	4 11 30,12	0,42	11 30,16	11 29,37	— 0,04	+ 0,75	2,259
149	4	δ^1 Tauri.....	5	4 13 11,86	0,15	13 11,87	13 11,45	— 0,01	+ 0,41	3,436
150	5	δ^3 Tauri.....	6	4 15 43,47	0,27	15 43,33	15 42,65	+ 0,14	+ 0,82	3,447
151	5	π Tauri.....	6	4 17 3,97	0,25		17 3,81		+ 0,16	3,375
152	4	ϵ Tauri.....	3	4 18 45,45	0,10	18 45,45	18 45,15	+ 0,00	+ 0,30	3,479
153	5	θ^1 Tauri.....	6	4 18 55,74	0,15	18 55,72	18 55,27	+ 0,02	+ 0,47	3,405
154	5	ρ Tauri.....	6	4 24 16,26	0,61		24 15,66		+ 0,60	3,383
155	5	δ Cæli Scalp...	6	4 25 39,56	0,21		25 39,50		+ 0,06	1,830
156	5	47 Eridani.....	6	4 26 3,49	0,31		26 3,35		+ 0,14	2,883
157	1	α Tauri.....	12	4 26 13,93	0,72	26 13,93	26 13,51	+ 0,00	+ 0,42	3,423
158	5	d Tauri.....	4	4 26 22,48	0,10		26 22,19		+ 0,29	3,280
159	4	54 Eridani.....	6	4 33 3,20	0,65	33 3,24	33 2,99	— 0,04	+ 0,21	2,616
160	4,5	α Cæli Scalp...	6	4 35 7,15	0,36		35 7,60		— 0,45	1,939
161	5	β Cæli Scalp...	5	4 36 5,26	0,21		36 4,98		+ 0,28	2,111
162	5	μ Eridani.....	4	4 37 3,67	0,72		37 3,06		+ 0,61	2,990
163	4	q Orionis.....	6	4 40 40,31	0,40	40 40,41	40 40,54	— 0,10	— 0,23	3,251
164	5	π^1 Orionis.....	6	4 41 24,49	0,27	41 24,47	41 24,33	+ 0,02	+ 0,16	3,258
165	4	r Orionis.....	5	4 42 12,49	0,40		42 12,93		— 0,44	3,185
166	5	o^1 Orionis.....	5	4 42 58,96	0,56		42 58,24		+ 0,72	3,382
167	4	ι Aurigæ.....	4	4 45 59,92	0,21	45 59,99	45 56,73	— 0,07	+ 3,19	3,887
168	5	o^2 Orionis.....	6	4 46 52,68	0,62		46 52,10		+ 0,58	3,367
169	5	ω Aurigæ.....	6	4 47 47,68	0,51		47 47,59		+ 0,09	4,047
170	4	ϵ Aurigæ.....	4	4 49 51,39	0,30	49 51,48	49 51,04	— 0,09	+ 0,35	4,280
171	4,5	ι Tauri.....	6	4 53 0,20	0,24	53 0,19	52 59,73	+ 0,01	+ 0,47	3,568
172	5	ψ Eridani.....	3	4 53 14,91	0,04		53 14,71		+ 0,20	2,901
173	4	η Aurigæ.....	5	4 54 40,53	0,31	54 40,57	54 40,29	— 0,04	+ 0,24	4,182
174	5	y^1 Orionis.....	3	4 54 55,02	0,57		54 54,75		+ 0,27	3,416
175	4	e Leporis.....	5	4 58 18,61	0,19	58 18,74	58 17,87	— 0,13	+ 0,74	2,532
176	3	β Eridani.....	6	4 59 32,74	0,27	59 33,06	59 32,63	— 0,32	+ 0,11	2,948
177	1	α Aurigæ.....	17	5 4 13,06	0,25	4 13,02	4 12,71	+ 0,04	+ 0,35	4,402
178	5	ρ^1 Orionis.....	4	5 4 27,66	0,13		4 27,33		+ 0,33	3,128
179	5	μ Leporis.....	6	5 5 20,58	0,14		5 20,26		+ 0,32	2,686
180	1	β Orionis.....	10	5 6 25,20	0,37	6 25,17	6 25,01	+ 0,03	+ 0,19	2,876
181	4	τ Orionis.....	7	5 9 24,19	0,33	9 24,21	9 24,31	— 0,02	— 0,12	2,907

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				h. m. s.	*s.*	*m. s.*	*m. s.*	*s.*	*s.*	*s.*
182	5	*o* Columbæ....	6	5 11 23,53	0,15		11 23,17		+ 0,36	+ 2,151
183	4,5	λ Leporis.....	5	5 11 47,40	0,37	11 47,58	11 47,14	— 0,18	+ 0,26	2,758
184	5	*m* Orionis.....	5	5 13 57,19	0,60		13 57,22		— 0,03	3,145
185	2	β Tauri.....	12	5 16 36,91	0,23	15 36,92	15 36,75	— 0,01	+ 0,16	3,779
186	4,5	η Orionis.....	6	5 15 58,99	0,23	15 59,02	15 58,85	— 0,03	+ 0,14	3,009
187	5	*o* Tauri.....	3	5 17 29,56	0,03	17 29,37	17 29,18	+ 0,19	+ 0,38	3,593
188	5	ψ² Orionis.....	6	5 17 59,23	0,19	17 59,20	17 58,95	+ 0,03	+ 0,28	3,136
189	4	β Leporis.....	6	5 21 0,40	0,30	21 0,43	21 0,39	— 0,03	+ 0,01	2,565
190	5	ι Orionis.....	4	5 21 9,22	0,73		21 8,39		+ 0,83	3,040
191	5	A Orionis.....	6	5 21 45,54	0,25		21 44,31		+ 1,23	3,202
192	2	δ Orionis.....	6	5 23 22,48	0,67	23 22,63	23 22,49	— 0,15	— 0,01	3,058
193	5	*c*¹ Orionis.....	5	5 27 3,15	0,65		27 2,57		+ 0,58	2,953
194	3,4	ζ Tauri.....	6	5 27 32,98	0,25	27 32,93	27 32,24	+ 0,05	+ 0,74	3,577
195	4	σ Orionis.....	11	5 30 15,86	0,41	30 15,94	30 15,56	— 0,08	+ 0,30	3,005
196	3	ζ Orionis.....	6	5 32 13,90	0,37	32 14,08	32 14,10	— 0,18	— 0,20	3,021
197	2	*a* Columbæ....	7	5 33 31,97	0,77	33 32,00	33 31,65	— 0,03	+ 0,32	2,167
198	4	γ Leporis.....	15	5 37 25,20	0,85	37 25,17	37 24,81	+ 0,03	+ 0,39	2,517
199	5	B Tauri.....	5	5 38 38,88	0,83	38 39,03	38 38,19	— 0,15	+ 0,69	3,674
200	4,5	ζ Leporis.....	5	5 39 17,98	0,27	39 18,13	39 17,52	— 0,15	+ 0,46	2,714
201	4,5	C Tauri.....	13	5 42 42,53	0,49	42 42,56	42 42,24	— 0,03	+ 0,29	3,763
202	5	δ Leporis.....	4	5 44 3,33	0,31		44 3,11		+ 0,22	2,559
203	5	χ¹ Orionis.....	5	5 44 22,78	0,34	44 22,71	44 22,26	+ 0,07	+ 0,52	3,559
204	3	β Columbæ....	3	5 45 0,50	0,39	45 0,21	45 0,22	+ 0,29	+ 0,28	2,105
205	1	*a* Orionis.....	7	5 46 1,43	0,32	46 1,54	46 1,42	— 0,11	+ 0,01	3,241
206	2	β Aurigæ.....	5	5 47 7,96	0,24	47 8,01	47 7,85	— 0,05	+ 0,11	4,398
207	4	θ Aurigæ.....	14	5 48 11,87	0,38	48 11,84	48 11,55	+ 0,03	+ 0,32	4,081
208	4	η Leporis.....	6	5 48 42,83	0,61	48 42,67	48 42,33	+ 0,16	+ 0,50	2,730
209	4	γ Columbæ....	9	5 51 32,74	0,68	51 32,74	51 32,68	+ 0,00	+ 0,06	2,122
210	5	μ Orionis.....	6	5 53 5,26	0,41	53 5,29	53 4,55	— 0,03	+ 0,71	3,295
211	5	H Geminor.....	6	5 53 51,05	0,52	53 50,99	53 50,68	+ 0,06	+ 0,37	3,642
212	5	χ³ Orionis.....	3	5 53 52,99	0,27		53 53,11		— 0,12	3,558
213	4,5	ν Orionis.....	19	5 57 55,50	0,61	57 55,43	57 55,03	+ 0,07	+ 0,47	3,421
214	5	θ Columbæ....	5	6 1 44,19	0,18		1 43,62		+ 0,57	2,053
215	5	*a* Lyncis.....	4	6 2 19,32	0,39		2 19,15		+ 0,17	5,535
216	5	ξ Orionis.....	8	6 2 19,87	0,45		2 19,73		+ 0,14	3,407
217	4	κ Aurigæ.....	5	6 4 36,64	0,55	4 36,61	4 35,83	+ 0,03	+ 0,81	3,825
218	4,5	*a* Monocer.....	18	6 6 36,82	0,58	6 36,87	6 36,57	+ 0,05	+ 0,25	2,922
219	4,5	κ Columbæ.....	16	6 10 32,43	0,63	10 32,61	10 32,43	— 0,18	+ 0,00	2,130
220	5	*d* Aurigæ.....	3	6 11 52,69	0,68		11 52,37		+ 0,32	4,623
221	3	μ Geminor.....	8	6 12 44,04	0,47	12 44,21	12 43,81	— 0,17	+ 0,23	3,623
222	3	ζ Can. Maj.....	6	6 13 49,64	0,48	13 49,71	13 49,65	— 0,07	— 0,01	2,298
223	2,3	β Can. Maj.....	7	6 15 15,46	0,33	15 15,57	15 15,30	— 0,11	+ 0,16	2,638
224	5	ν Geminor.....	18	6 18 55,70	0,58	18 55,61	18 55,20	+ 0,09	+ 0,50	3,561
225	1	*a* Argus.....	12	6 20 11,89	1,02		20 11,91		— 0,02	1,327
226	5	D Can. Maj.....	5	6 21 54,76	0,73		21 54,45		+ 0,31	2,221
227	5	*f* Monocer.....	6	6 23 45,94	0,58		23 45,80		+ 0,14	3,242

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				h. m. s.	*s.*	*m. s.*	*m. s.*	*s.*	*s.*	*s.*
228	3	γ Geminor.	3	6 27 56,60	0,71	27 56,83	27 56,47	— 0,23	+ 0,13	+ 3,462
229	5	ξ² Can. Maj....	4	6 27 58,75	0,76		27 58,23		+ 0,52	2,510
230	5	ν² Can. Maj....	4	6 29 18,78	0,54		29 18,71		+ 0,07	2,609
231	5	55 Aurigæ.	2	6 30 46,62	0,36		30 46,49		+ 0,13	4,377
232	3	ν Argus..... ...	4	6 32 35,41	0,50		32 35,49		— 0,08	1,832
233	5	42 Camelopardi..	5	6 33 17,09	0,84		33 16,82		+ 0,27	6,299
234	3	c Geminor.....	5	6 33 32,00	0,73	33 31,94	33 31,58	+ 0,06	+ 0,42	3,693
235	4	ξ² Geminor	6	6 35 48,38	0,57	35 48,15	35 48,19	+ 0,23	+ 0,19	3,375
236	1	α Can. Maj.....	21	6 37 41,98	1,10	37 41,91	37 41,91	+ 0,07	+ 0,07	2,643
237	5	i Monocer.	4	6 38 9,21	0,44		38 8,77		+ 0,44	3,258
238	5	x Agr. in Pup...	7	6 41 34,35	1,07		41 34,38		— 0,03	2,051
239	5	θ Geminor.....	3	6 41 38,66	0,75		41 38,18		+ 0,48	3,960
240	5	e Lyncis.....	4	6 42 37,08	0,58		42 36,56		+ 0,52	5,222
241	4	κ₂ Can. Maj....	5	6 43 31,82	0,36	43 31,89	43 31,67	— 0,07	+ 0,15	2,238
242	5	Can. Maj....	7	6 44 43,51	0,48		44 43,52		— 0,01	2,178
243	4	o¹ Can. Maj....	5	6 47 7,36	0,17	47 7,43	47 7,17	— 0,07	+ 0,19	2,486
244	4,5	ι Can. Maj....	10	6 48 36,14	0,67	48 36,09	48 35,77	+ 0,05	+ 0,37	2,673
245	2,3	ε Can. Maj....	11	6 51 59,30	0,87	51 59,24	51 58,93	+ 0,06	+ 0,37	2,354
246	4	ζ Geminor.....	7	6 54 4,91	0,70	54 4,86	54 4,77	+ 0,05	+ 0,14	3,562
247	3,4	σ Can. Maj.....	6	6 54 59,34	0,40	54 59,42	54 59,15	— 0,08	+ 0,19	2,387
248	4	o² Can. Maj....	4	6 55 58,14	0,32	55 58,29	55 57,88	— 0,15	+ 0,26	2,502
249	4	γ Can. Maj.....	7	6 56 6,79	1,02	56 6,75	56 6,50	— 0,04	+ 0,29	2,711
250	5	63 Aurigæ.	6	7 0 1,17	0,43		0 1,44		— 0,27	4,135
251	5	τ Geminorum ..	5	7 0 22,38	0,80		0 22,19		+ 0,19	3,829
252	3,4	δ Can. Maj.....	5	7 1 31,07	0,60		1 31,09		— 0,02	2,436
253	4,5	m Monocerotis..	7	7 3 13,94	0,71	3 14,02	3 14,05	— 0,08	— 0,11	3,063
254	5	51 Geminorum..	5	7 3 39,81	0,60	3 39,84	3 39,71	— 0,03	+ 0,10	3,447
255	5	64 Aurigæ.	5	7 6 16,36	0,51		6 15,97		+ 0,39	4,188
256	4,5	e¹ Can. Maj....	9	7 7 22,04	0,56	7 22,07	7 21,88	— 0,03	+ 0,16	2,443
257	5	1 Arg. in Pup..	5	7 7 44,61	0,51		7 44,64		— 0,03	1,722
258	4,5	λ Geminorum ..	4	7 8 22,75	0,34	8 22,52	8 22,67	+ 0,23	+ 0,08	3,455
259	3,4	δ Geminorum ..	6	7 10 1,46	0,47	10 1,52	10 1,23	— 0,06	+ 0,23	3,590
260	5	65 Aurigæ.	5	7 10 44,35	0,31		10 43,63		+ 0,72	4,030
261	3,4	π Argus..... ...	2	7 11 10,54	0,38		11 9,70		+ 0,84	2,116
262	4	60 Geminorum..	12	7 15 13,38	0,44	15 13,30	15 13,19	+ 0,08	+ 0,19	3,744
263	5	δ Piscis Vol....	5	7 16 53,32	0,43		16 53,50		— 0,18	0,000
264	3	η Can. Maj.....	6	7 17 24,78	0,33	17 24,85	17 24,00	— 0,07	+ 0,78	2,370
265	3	β Can. Minoris.	6	7 17 59,14	0,46	17 58,95	17 58,47	+ 0,19	+ 0,67	3,259
266	5	ρ Geminorum ..	4	7 18 14,01	0,37		18 13,35		+ 0,66	3,858
267	3	α Geminorum ..	30	7 23 48,10	0,85	23 48,33	23 48,15	— 0,23	— 0,05	3,856
268	4	σ Argus..... ...	5	7 23 52,30	0,28		23 51,79		+ 0,51	1,906
269	5	68 Geminorum..	5	7 23 57,70	0,42		23 57,37		+ 0,33	3,430
270	1,2	α Canis Minoris.	41	7 30 27,13	1,10	30 27,20	30 26,99	— 0,07	+ 0,14	3,143
271	4,5	n Monocerotis ..	5	7 33 10,24	0,54	33 10,43	33 10,15	— 0,19	+ 0,09	2,870
272	4	κ Geminorum ..	5	7 34 14,38	0,44	34 14,17	34 13,41	+ 0,21	+ 0,97	3,634
273	2	β Geminorum ..	24	7 34 57,94	0,82	34 57,91	34 57,46	+ 0,03	+ 0,48	3,682

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				h. m. s.	*s.*	*m. s.*	*m. s.*	*s.*	*s.*	*s.*
274	5	3 Argus.....	4	7 37 1,51	0,40		37 1,26		+ 0,25	+ 2,405
275	4	*c* Argus in Pup.	6	7 39 14,19	1,10		39 14,29		— 0,10	2,135
276	4	*ξ* Argus.....	7	7 42 11,47	0,95	42 11,38	42 11,21	+ 0,09	+ 0,26	2,520
277	5	*φ* Geminorum..	7	7 43 8,66	0,79	43 8,68	43 8,20	— 0,02	+ 0,46	3,686
278	5	9 Argus.....	5	7 43 56,72	0,93		43 56,43		+ 0,29	2,781
279	4,5	P Argus in Pup.	4	7 44 5,49	0,62		44 5,54		— 0,05	1,827
280	5	*b* Argus in Pup.	6	7 46 39,92	0,66		46 39,53		+ 0,39	2,121
281	5	R Argus in Pup.	6	7 48 20,19	0,69		48 20,32		— 0,13	1,762
282	3	*χ* Argus.....	5	7 52 28,58	1,26		52 28,81		— 0,23	1,530
283	5	13 Argus.....	8	7 53 28,31	0,90		53 28,18		+ 0,13	3,125
284	5	27 Lyncis — k.	7	7 55 42,71	0,84		55 42,42		+ 0,29	4,564
285	5	55 Camelopardi..	5	7 55 53,01	0,74		55 52,09		+ 0,92	6,107
286	3	*ζ* Argus.....	8	7 57 38,81	0,91		57 38,63		+ 0,18	2,108
287	3,4	15 Argus.....	6	8 0 20,76	0,80	0 20,99	0 20,38	— 0,23	+ 0,38	2,558
288	5	[1]*γ* Argus.....	14	8 4 17,02	1,01		4 17,05		— 0,03	1,847
289	2	[2]*γ* Argus.....	16	8 4 19,34	0,89		4 19,65		— 0,31	1,848
290	5	20 Argus.....	5	8 5 34,19	0,53		5 33,68		+ 0,51	2,756
291	5	* Argus.....	5	8 5 43,81	0,80		5 43,03		+ 0,78	2,024
292	5	*r* Argus in Pup.	6	8 7 6,88	0,45		7 6,78		+ 0,10	2,261
293	4	*β* Cancri.....	7	8 7 20,78	0,44	7 20,74	7 20,30	+ 0,04	+ 0,48	3,262
294	5	*m* Lyncis or 31..	9	8 11 14,34	0,67		11 13,85		+ 0,49	4,142
295	4,5	*q* Argus in Pup.	5	8 12 14,18	0,45		12 14,31		— 0,13	2,250
296	4,5	*o* Ursæ Maj. ..	5	8 16 9,21	0,85	16 9,29	16 8,38	— 0,08	+ 0,83	5,089
297	2	*ε* Argus.....	12	8 17 2,41	0,87		17 2,38		+ 0,03	1,243
298	5	*η* Piscis. Vol. ..	7	8 23 31,32	0,74		23 30,72		+ 0,60	— 0,441
299	5	*β* Piscis. Vol...	6	8 23 52,78	0,68		23 44,25		+ 8,53	+ 0,686
300	5	*π*[4] Ursæ Maj...	7	8 25 20,72	0,84		25 20,71		+ 0,01	5,368
301	4	*δ* Hydræ.....	11	8 28 42,14	0,77	28 42,29	28 41,81	— 0,15	+ 0,33	3,185
302	5	*σ* Hydræ.....	6	8 29 55,52	0,83		29 54,92		+ 0,60	3,141
303	5	*e*[1] Arg. in Vel..	8	8 31 42,21	0,43		31 42,27		— 0,06	2,106
304	5	*γ* Cancri.....	3	8 33 29,59	0,64	33 29,71	33 29,33	— 0,12	+ 0,26	3,493
305	5	*β* Pixed Naut..	8	8 33 29,44	0,89		33 28,80		+ 0,64	2,342
306	5	*η* Hydræ.....	8	8 34 23,39	0,82		34 23,02		+ 0,37	3,141
307	5	*b* Arg. in Vel...	6	8 35 1,33	0,64		35 1,30		+ 0,03	1,987
308	4,5	*δ* Cancri.....	5	8 35 4,33	0,30	35 4,36	35 3,93	— 0,03	+ 0,40	3,422
309	4	*o* Argus.....	4	8 35 27,17	0,55		35 27,44		— 0,27	1,721
310	4,5	*α* Pixed Naut..	6	8 36 48,44	0,87	36 48,51	36 48,25	— 0,07	+ 0,19	2,406
311	4	*ε* Hydræ.....	4	8 37 49,37	0,42	37 49,36	37 49,05	+ 0,01	+ 0,32	3,195
312	5	*ρ* Hydræ.....	8	8 39 28,44	0,92		39 28,31		+ 0,13	3,184
313	3	*δ* Argus.....	5	8 40 2,11	1,03		40 2,25		— 0,14	1,655
314	5	*α* Arg. in Vel...	8	8 40 17,98	0,55		40 18,03		— 0,05	2,030
315	4	*ζ* Hydræ.....	18	8 43 27,62	0,90	43 27,37	43 27,79	+ 0,25	— 0,17	3,183
316	3,4	*ι* Ursæ Maj....	7	8 47 35,92	0,78		47 35,42		+ 0,50	4,131
317	5	*α*[3] Cancri.....	7	8 49 14,27	0,86	49 14,21	49 13,96	+ 0,06	+ 0,31	3,287
318	4,5	H Ursæ Maj. or *κ*	6	8 52 3,08	0,53		52 3,15		— 0,07	4,147
319	5	*b*[1] Arg. in Car..	9	8 52 50,36	1,02		52 50,19		+ 0,17	1,474

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				h. m. s.	s.	m. s.	m. s.	s.	s.	s.
320	5	b^1 Arg. in Car..	7	8 55 15,13	1,06		55 15,60		— 0,47	+ 1,498
321	5	Lyncis.....	7	8 55 45,37	0,67		55 45,03		+ 0,34	3,851
322	5	c Arg. in Vel...	14	8 58 19,96	0,95		58 20,19		— 0,23	2,068
323	5	α Piscis. Vol. ..	7	8 59 45,74	0,87		59 45,29		+ 0,45	0,966
324	3,4	λ Argus..... ...	10	9 1 47,51	0,93		1 47,27		+ 0,24	2,201
325	5	e Ursæ Maj....	8	9 3 58,44	0,64		3 58,50		— 0,06	4,380
326	4,5	O Hydræ.....	10	9 5 34,24	0,66	5 34,07	5 33,92	+ 0,17	+ 0,32	3,117
327	5	α Arg. in Car...	5	9 6 31,47	1,10		6 30,96		+ 0,51	1,584
328	4	p Lyncis..... ..	8	9 8 18,23	0,34	8 18,30	8 17,69	— 0,07	+ 0,54	3,767
329	5	l Arg. in Vel...	6	9 8 57,34	0,62		8 57,27		+ 0,07	2,363
330	4,5	r Lyncis.....	7	9 10 44,29	0,67	10 44,43	10 44,19	— 0,14	+ 0,10	3,701
331	2	β Argus..... ..	4	9 11 18,72	0,78		11 19,73		— 1,01	0,729
332	2	ι Argus,..	5	9 12 33,93	0,75		12 32,27		+ 1,66	1,609
333	5	θ Pixed Naut...	10	9 14 1,10	0,77		14 0,69		+ 0,41	2,650
334	5	κ Leonis.....	9	9 14 47,88	0,49		14 47,74		+ 0,14	3,516
335	3	κ Argus.....	6	9 16 53,19	1,20		16 53,15		+ 0,04	1,854
336	4	h Ursæ Maj....	8	9 18 6,74	0,49	18 6,91	18 5,97	— 0,17	+ 0,77	4,831
337	2	α Hydræ..... ..	15	9 19 16,96	0,78	19 17,02	19 16,64	— 0,06	+ 0,32	2,948
338	5	d Ursæ Maj....	5	9 19 22,99	0,93		19 23,86		— 0,87	5,512
339	3	θ Ursæ Maj....	5	9 21 30,38	1,01	21 30,52	21 29,85	— 0,14	+ 0,53	4,057
340	4,5	λ Leonis.....	5	9 22 4,18	0,54	22 4,01	22 3,85	+ 0,17	+ 0,33	3,441
341	5	n Arg. in Car...	4	9 23 3,89	0,79		23 7,04		— 3,15	1,320
342	4,5	ψ Argus..... ...	4	9 24 3,62	0,87		24 3,34		+ 0,28	2,369
343	5	N Arg. in Vel...	8	9 26 5,60	0,74		26 4,04		+ 1,56	1,822
344	5	h Arg. in Car...	10	9 29 32,87	0,56		29 32,88		— 0,01	1,738
345	5	ι Hydræ..... ..	10	9 31 13,65	0,85		31 12,96		+ 0,69	3,063
346	4	o Leonis.....	8	9 32 7,44	0,44	32 7,51	32 6,96	— 0,07	+ 0,48	3,219
347	5	κ Hydræ..... ..	5	9 32 12,47	0,70		32 12,33		+ 0,14	2,874
348	6	ψ Leonis.....	3	9 34 31,22	0,25		34 31,01		+ 0,21	3,277
349	3	ϵ Leonis.....	14	9 36 14,63	0,79	36 14,78	36 14,31	— 0,15	+ 0,32	3,426
350	4,5	υ Ursæ Maj....	10	9 38 54,10	0,87	38 54,10	38 54,71	+ 0,00	— 0,61	4,356
351	5	ϕ Ursæ Maj....	7	9 40 32,98	0,67		40 33,63		— 0,65	4,153
352	5	l Arg. in Car...	5	9 40 36,02	0,32		40 34,75		+ 1,27	1,648
353	3,4	υ Argus..... ...	5	9 42 52,50	0,70		42 52,56		— 0,06	1,505
354	3	μ Leonis.....	6	9 43 8,14	0,72	43 8,32	43 7,57	— 0,18	+ 0,57	3,448
355	5	υ^1 Hydræ.....	5	9 43 21,16	0,17		43 21,21		— 0,05	2,880
356	4	ϕ Argus..... ...	5	9 50 56,69	0,58		50 56,49		+ 0,20	2,095
357	4,5	π Leonis.....	7	9 51 16,59	0,37	51 16,72	51 16,50	— 0,13	+ 0,09	3,179
358	5	d Leonis Min...	10	9 57 26,56	0,64		57 25,99		+ 0,57	3,564
359	3,4	η Leonis.....	8	9 58 6,80	0,62	58 6,65	58 6,23	+ 0,15	+ 0,57	3,283
360	5	A Leonis.....	5	9 58 56,00	0,49	58 55,79	58 55,55	+ 0,21	+ 0,45	3,197
361	1	α Leonis.....	7	9 59 21,97	0,58	59 21,93	59 21,51	+ 0,04	+ 0,46	3,221
362	4,5	λ^2 Hydræ.....	11	10 2 21,13	0,58	2 21,20	2 20,66	— 0,07	+ 0,47	2,934
363	6	21 Sextantis	5	10 5 43,19	0,69		5 43,13		+ 0,06	2,988
364	3,4	λ Ursæ Maj....	9	10 6 52,30	0,65	6 52,44	6 52,23	— 0,14	+ 0,07	3,675
365	4,5	ζ Leonis.....	6	10 7 16,65	0,32	7 16,67	7 16,31	— 0,02	+ 0,34	3,353

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				h. m. s.	*s.*	*m. s.*	*m. s.*	*s.*	*s.*	*s.*
366	4	q Arg. in Vel...	9	10 7 39,58	0,48		7 39,60		— 0,02	+ 2,516
367	4,5	ω Argus.....	6	10 9 42,90	0,74		9 42,28		+ 0,62	1,440
368	2	γ Leonis.....	6	10 10 38,69	0,53	10 38,66	10 38,31	+ 0,03	+ 0,38	3,300
369	5	q Arg. in Car...	4	10 11 27,24	0,49		11 25,63		+ 1,61	1,991
370	3	μ Ursæ Maj....	7	10 12 13,86	0,37	12 13,91	12 13,81	— 0,05	+ 0,05	3,620
371	6	42 Leonis.....	3	10 12 44,54	0,52		12 44,28		+ 0,26	3,239
372	5	T Arg. in Vel...	8	10 14 38,46	1,24		14 36,67		+ 1,79	2,215
373	4,5	r Arg. in Vel...	6	10 15 5,58	0,53		15 5,61		— 0,03	2,558
374	4,5	f Leonis Min...	6	10 16 12,42	0,47	16 12,44	16 11,42	— 0,02	+ 1,00	3,473
375	4	μ Hydræ.....	7	10 17 55,46	0,56	17 55,41	17 54,75	+ 0,05	+ 0,71	2,903
376	4,5	g Leonis.....	5	10 18 5,25	0,20	18 5,31	18 3,82	— 0,06	+ 1,43	3,511
377	4,5	a Antl. Penum..	4	10 19 25,80	0,27	19 25,74	19 25,88	+ 0,06	— 0,08	2,737
378	5	36 Ursæ Maj....	6	10 19 45,17	0,53	19 45,13	19 46,22	+ 0,04	— 1,05	3,935
379	4	ρ Leonis.....	14	10 23 54,47	0,39	23 54,44	23 54,31	+ 0,03	+ 0,16	3,166
380	5	κ Ursæ Maj....	5	10 24 12,79	0,85	24 13,02	24 12,77	— 0,23	+ 0,02	3,935
381	5,6	48 Leonis.....	5	10 25 58,88	0,38	25 58,80	25 58,42	+ 0,08	+ 0,46	3,141
382	4	p Arg. in Car...	7	10 26 2,13	0,69		26 2,67		— 0,54	2,114
383	4	l Leonis Min...	9	10 29 11,34	0,82	29 11,46	29 11,18	— 0,12	+ 0,16	3,401
384	5	p Arg. in Vel...		10 30 13,78	0,96		30 13,27		+ 0,51	2,514
385	5	ϕ^2 Hydræ & Crat.	7	10 30 21,23	0,47		30 21,35		— 0,12	2,922
386	5,6	40 Leonis Min..	5	10 33 44,28			33 43,69		+ 0,59	3,321
387	5	θ^1 Argus.....	5	10 36 16,02	0,76		36 13,87		+ 2,15	2,106
388	4,5	n Leo. Min. or 42	8	10 36 26,94	0,41	36 27,01	36 26,28	— 0,07	+ 0,66	3,361
389	2,3	θ^2 Argus.....	15	10 36 56,84	0,87		36 55,04		+ 1,80	2,117
390	2	η Argus.....	6	10 38 31,81	0,48		38 32,30		— 0,49	2,300
391	3	u Argus.....	7	10 39 31,22	0,98		39 30,95		+ 0,27	2,548
392	4	ν Hydræ & Crat.	2	10 41 17,56	0,03	41 17,54	41 17,06	+ 0,02	+ 0,50	2,945
393	4 5	o Leonis Min...	8	10 43 50,39	0,64	43 50,22	43 50,09	+ 0,17	+ 0,30	3,375
394	5	ω Ursæ Maj....	10	10 44 13,44	0,40		44 12,89		+ 0,55	3,488
395	4,5	54 Leonis.....	8	10 46 27,02	0,54	46 27,09	46 26,89	— 0,07	+ 0,13	3,271
396	5	u Arg. in Car...	6	10 46 39,66	0,62		46 40,74		— 1,08	2,396
397	5	Antl. Penum..	7	10 48 51,46	0,84		48 51,64		— 0,18	2,769
398	4	α Hydræ & Crat.	10	10 51 32,75	0,27	51 32,92	51 32,32	— 0,17	+ 0,43	2,905
399	2	β Ursæ Maj....	5	10 51 35,36	0,24	51 35,35	51 35,48	+ 0,01	— 0,12	3,680
400	5	d Leonis.....	6	10 51 49,86	0,23	51 49,79	51 49,58	+ 0,07	+ 0,28	3,099
401	1,2	α Ursæ Maj....	6	10 53 13,68	0,55	53 13,66	53 13,57	+ 0,02	+ 0,11	3,811
402	5	b Leonis.....	7	10 53 17,85	0,55		53 17,41		+ 0,44	3,216
403	4,5	χ Leonis.....	7	10 56 18,03	0,81	56 17,86	56 17,34	+ 0,17	+ 0,69	3,086
404	5	χ^1 Hydræ & Crat.	8	10 57 12,20	0,51		57 12,01		+ 0,19	2,889
405	5,6	p^2 Leonis.....	6	10 58 16,86	0,41		58 16,60		+ 0,26	3,086
406	3,4	ψ Ursæ Maj....	8	11 0 7,75	0,66	0 7,98	0 8,17	— 0,23	— 0,42	3,419
407	5	10 Hydræ & Crat.	6	11 0 34,32	0,59		0 34,17		+ 0,15	2,892
408	4	β Hydræ & Crat.	6	11 3 21,56	0,81	3 21,46	3 21,55	+ 0,10	+ 0,01	2,937
409	5,6	p^4 Leonis.....	9	11 5 6,55	0,80		5 6,36		+ 0,19	3,073
410	3	δ Leonis.....	4	11 5 6,92	0,50	5 6,79	5 6,30	+ 0,13	+ 0,62	3,193
411	3	θ Leonis.....	7	11 5 21,85	0,52	5 21,98	5 21,45	— 0,13	+ 0,40	3,161

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				h. m. s.	s.	m. s.	m. s.	s.	s.	s.
412	5	ϕ Leonis.....	7	11 8 4,42	0,53		8 3,67		+ 0,75	+ 3,054
413	4	ξ Ursæ Maj....	6	11 9 9,16	0,61	9 9,21	9 8,45	— 0,05	+ 0,71	3,221
414	4	ν Ursæ Maj. ..	3	11 9 19,93	0,23	9 19,95	9 19,82	— 0,02	— 0,11	3,266
415	5	p Ursæ Maj....	3	11 9 53,89	0,56		9 53,53		+ 0,36	3,304
416	4	σ Leonis.....	4	11 12 25,54	0,32	12 25,26	12 24,84	+ 0,28	+ 0,70	3,071
417	4	π Centauri.....	4	11 13 19,79	0,40		13 19,10		+ 0,69	2,702
418	7	* Leonis.....	7	11 14 38,84	0,59		14 38,63		+ 0,21	3,073
419	4	ι Leonis.....	9	11 15 6,85	0,55	15 6,60	15 6,26	+ 0,25	+ 0,59	3,121
420	5	ϵ Hydræ & Crat.	7	11 16 4,85	0,54		16 4,77		+ 0,08	3,023
421	4	γ Hydræ & Crat.	3	11 16 26,89	0,10	16 26,78	16 26,27	+ 0,11	+ 0,62	2,992
422	4	τ Leonis.....	9	11 19 14,96	0,66	19 14,84	19 14,39	+ 0,12	+ 0,57	3,084
423	4,5	e Leonis.....	7	11 21 40,97	0,41	21 40,97	21 40,91	0,00	+ 0,06	3,060
424	7	* Hydræ & Crat.	5	11 23 20,89	0,25		23 20,82		+ 0,07	3,047
425	4	ξ Hydræ & Crat.	7	11 24 42,64	0,38	24 42,46	24 41,71	+ 0,18	+ 0,93	2,945
426	6	* Ursæ Min....	5	11 27 23,34	0,52		27 23,31		+ 0,03	3,172
427	4	λ Centauri.....	8	11 28 2,16	0,69		28 0,18		+ 1,98	2,717
428	4	θ Hydræ & Crat.	8	11 28 6,85	0,58	28 6,96	28 6,45	— 0,11	+ 0,40	3,039
429	4,5	υ Leonis.....	6	11 28 18,00	0,37	28 18,05	28 17.58	— 0,05	+ 0,42	3,068
430	5,6	92 Leonis.....	3	11 31 59,23	0,01		31 59,03		+ 0,20	3,135
431	6,7	* Virginis.....	7	11 35 17,46	0,66		35 17,24		+ 0,22	3,054
432	4	ζ Hydræ & Crat.	8	11 36 12,50	0,51	36 12 46	36 11,95	+ 0,04	+ 0.55	3,025
433	5	ξ^1 Virginis.....	9	11 36 34,27	0,28	36 34,10	36 33,38	+ 0,17	+ 0,89	3,090
434	4	χ Ursæ Maj....	5	11 37 5,77	0,20	37 5,78	37 4,99	— 0,01	+ 0,78	3,220
435	4,5	ν Virginis.....	5	11 37 10,20	0,25	37 10,34	37 10,12	— 0,14	+ 0,08	3,086
436	2,3	β Leonis.....	3	11 40 26,01	0,21	40 26,11	40 25,83	+ 0,10	+ 0,18	3,064
437	3,4	β Virginis.....	8	11 41 53,67	0,51	41 53,78	41 53,30	— 0,11	+ 0,37	3,124
438	6	B Virginis.....	6	11 42 24,12	0,48		42 23,65		+ 0,47	3,060
439	4	β Hydræ & Crat.	6	11 44 23,64	0,39	44 23,41	44 23,50	+ 0,23	+ 0,14	3,109
440	2	γ Ursæ Maj....	7	11 44 54,23	0,50	44 54,21	44 54,02	+ 0,02	+ 0,21	3,192
441	6	A Virginis.....	6	11 46 22,77	0,35		46 22,52		+ 0,25	3,081
442	5	π Virginis.....	13	11 52 12,77	0,47		52 12,68		+ 0,09	3,074
443	6	1 Comæ Ber. ..	5	11 53 4,50	1,08		53 3,62		+ 0,88	3,085
444	7	* Virginis.....	6	11 55 6,85	0,51		55 7,04		— 0,19	3,071
445	4,5	o Virginis.....	15	11 56 36,05	0,44	56 35,95	56 35,78	+ 0,10	+ 0,27	3,071
446	4,5	η Crucis.....	6	11 58 7,88	0,52		58 8,29		— 0,41	3,046
447	3	δ Centauri.....	6	11 59 38,26	0,82		59 38,62		— 0,36	3,065
448	4,5	a Corvi.....	3	11 59 42,76	0,09	59 42,72	59 42,59	+ 0,04	+ 0,17	3,067
449	6	τ Virginis.....	3	12 1 1,66	0,70		1 1,46		+ 0,20	3,068
450	4	ϵ Corvi.....	6	12 1 27,00	0,50	1 26,82	1 26,57	+ 0,18	+ 0,43	3,071
451	4	ρ Centauri.....	6	12 2 51,48	0,50		2 50,33		+ 1,15	3,088
452	3	δ Crucis.....	7	12 6 13,70	0,42		6 11,64		+ 2,06	3,125
453	3	δ Ursæ Maj....	8	12 7 1,40	0.85	7 1,38	7 0,58	+ 0,02	+ 0,82	3.003
454	3	γ Corvi.....	6	12 7 7,61	0,25	7 7,61	7 7,29	0,00	+ 0,32	3,080
455	5	h Comæ Ber.. .	5	12 7 47,23	0,33		7 46,84		+ 0,39	3,047
456	6	n Virginis.....	6	12 10 0,70	0,46	10 0,71	10 0,43	— 0,01	+ 0,27	3,068
457	3,4	η Virginis.....	5	12 11 15,66	0,20	11 15,62	11 15,70	+ 0,04	— 0,04	3,068

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				h. m. s.	*s.*	*m. s.*	*m. s.*	*s.*	*s.*	*s.*
458	5	*s* Comæ Ber. . .	5	12 12 10,44	0,65		12 9,81		+ 0,63	+ 3,044
459	5	*e* Comæ Ber. . .	9	12 14 0,15	0,56		13 59,92		+ 0,23	3,027
460	5	*f* Comæ Ber. . .	6	12 15 49,40	0,69		15 48,60		+ 0,80	3,021
461	1	α^2 Crucis	5	12 17 15,72	0,70		17 14,36		+ 1,36	3,258
462	4,5	α Comæ Ber. . .	4,5	12 18 31,85	0,54	18 31,81	18 31,12	+ 0,04	+ 0,73	3,011
463	5	σ Centauri.	5	12 18 56,48	0,60		18 57,04		— 0,56	3,196
464	2,3	γ Crucis	5	12 21 50,79	0,31		21 51,26		— 0,47	3,257
465	4,5	η Corvi.	6	12 23 22,52	0,50	23 22,34	23 22,36	+ 0,18	+ 0,16	3,105
466	2,3	β Corvi.	7	12 25 31,60	0,77	25 31,53	25 30.92	+ 0,07	+ 0,68	3,129
467	4,5	*d* Canum. Ven.	5	12 25 42,04	0,55	25 42,04	25 41,97	0,00	+ 0,07	2,864
468	3,4	κ Draconis.	3	12 26 13,35	0,38	26 13,24	26 12,32	+ 0,11	+ 1,03	2,600
469	5	τ Centauri.	5	12 28 30,02	0,51		28 30,05		— 0,03	3,249
470	5	*l* Centauri.	10	12 30 45,53	0,68		30 45,46		+ 0,07	3,213
471	3	γ Centauri.	7	12 32 14,30	0,62		32 15,00		— 0,70	3,276
472	4	γ^1 Virginis.	3	12 33 6,11	0,30	33 6,11	33 5,81	0,00	+ 0,30	3,022
473	4	β Muscæ	4	12 36 1,16	0,73		36 1,92		— 0,76	3,564
474	2	β Crucis	8	12 37 54,59	0,61		37 55,41		— 0,82	3,430
475	6	*n* Comæ Ber. . .	7	12 38 12,17	0,38		38 11,89		+ 0,28	2,998
476	6,7	* Virginis.	3	12 38 50,19	0,67		38 49,64		+ 0,55	3,089
477	6	35 Virginis.	3	12 39 15,18	0,17		39 14,93		+ 0,25	3,050
478	5	*n* Centauri.	10	12 44 6,55	0,93		44 5,27		+ 1,28	3,277
479	5	*o* Centauri.	7	12 44 43 31	0,83		44 43,55		— 0,24	3,455
480	5	*q* Comæ Ber. . .	5	12 44 58,18	0,42		44 58,21		— 0,03	2,962
481	3	*e* Ursæ Maj. . . .	4	12 46 34,29	0,20	46 34.26	46 33,58	+ 0,03	+ 0,71	2,655
482	3,4	δ Virginis.	5	12 47 5,64	0,42	47 5,59	47 5,37	+ 0,05	+ 0,27	3,004
483	2,3	α Canum. Ven. .	4	12 48 6,76	0,21	48 6,74	48 6,27	+ 0,02	+ 0,49	2,841
484	4,5	γ Comæ Ber. . .	6	12 50 33,70	0,68	50 33,80	50 33,34	— 0,10	+ 0,36	2,971
485	6	k^1 Virginis	3	12 50 57,60	0,41		50 57,32		+ 0,28	3,083
486	5	37 Comæ Ber. . .	9	12 52 10,77	0,75		52 11,26		— 0,49	2,882
487	3,4	ϵ Virginis.	7	12 53 46,06	0,56	53 46,01	53 45,77	+ 0,05	+ 0,29	3,003
488	6	k^4 Virginis	6	12 55 12.27	0,34		55 11,96		+ 0,31	3,083
489	5	53 Virginis.	7	13 3 4,83	0,53		3 4,24		+ 0,59	3,167
490	6	* Virginis.	4	13 4 8,45	0,27		4 8,29		+ 0,16	2,987
491	4,5	61 Virginis.	12	13 9 34,87	0,44	9 35,04	9 34,27	— 0,17	+ 0,60	3,196
492	4,5	γ Hydræ Con. . .	6	13 9 45,17	0,57	9 45,22	9 44,91	— 0,05	+ 0,26	3,232
493	5	*h* Canum. Ven. .	5	13 9 57,29	0,48		9 56,68		+ 0,61	2,713
494	5	21 Canum. Ven. .	4	13 11 2,32	0,20		11 2,11		+ 0,21	2,573
495	6	65 Virginis.	4	13 14 33,97	0,21		14 34,15		— 0,18	3,098
496	1	α Virginis.	15	13 16 18,14	0,72	16 18,00	16 17,86	+ 0,14	+ 0,28	3,147
497	3	ζ Ursæ Maj. . . .	9	13 17 6,37	0,50	17 6,21	17 4,91	+ 0,16	+ 1,46	2,419
498	5	*i* Virginis.	6	13 17 48,26	0,46	17 48,20	17 47,61	+ 0,06	+ 0,65	3,161
499	5,6	P Virginis.	3	13 18 27,18	0,32		18 26,76		+ 0,42	3,189
500	4	*d* Centauri.	8	13 21 16,68	0,75		21 16,61		+ 0,07	3,437
501	6	l^2 Virginis.	4	13 23 11,28	0,30	23 11,57	23 10,94	— 0,29	+ 0,34	3,113
502	6	75 Virginis.	4	13 23 50,66	0,40		23 50,19		+ 0,47	3,191
503	4	ζ Virginis.	9	13 26 5,37	0,48	26 5,39	26 5,33	— 0,02	+ 0,04	3,066

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				h. m. s.	*s.*	*m. s.*	*m. s.*	*s.*	*s.*	*s.*
504	6	l^3 Virginis.	6	13 26 44,29	0,27		26 44,06		+ 0,23	+ 3,107
505	6	t Centauri.	4	13 29 13,76	0,14		29 13,93		— 0,17	3,345
506	3	ε Centauri.		13 29 14,24	0,51		29 14,91		— 0,67	3,731
507	6	1 Bootis.	7	13 32 36,12	0,54		32 35,48		+ 0,64	2,868
508	5,6	m Virginis.	5	13 32 45,15	0,10	32 45,23	32 44,95	— 0,08	+ 0,20	3,140
509	5	i Centauri.	9	13 36 6,70	0,76		36 7,44		— 0,74	3,410
510	5	τ Bootis.	6	13 39 13,82	0,46		39 13,41		+ 0,41	2,883
511	4	μ Centauri.	5	13 39 28,52	0,35		39 28,55		— 0,03	3,567
512	5	g Centauri.	3	13 39 40,98	0,19		39 40,88		+ 0,10	3.442
513	2,3	η Ursæ Maj. . . .	2	13 40 52,33	0,47	40 52,34	40 51,72	— 0,01	+ 0,61	2,353
514	4	v Bootis.	3	13 41 19,58	0,16	41 19,56	41 19,12	+ 0,02	+ 0,46	2,897
515	5	h Centauri.	5	13 43 30,58	0,33		43 30,46		+ 0,12	3,419
516	3	ζ Centauri.	6	13 45 2,65	0,60		45 2,84		— 0,19	3,690
517	4,5	i Draconis.	5	13 46 29,66	0,18	46 29,61	46 28,48	+ 0,05	+ 0,18	1.751
518	3	η Bootis.	6	13 46 38,39	0,31	46 38,49	46 38,04	— 0,10	+ 0,35	2,859
519	5	ϕ Centauri.	5	13 48 2,15	0,49		48 2,13		+ 0,02	3,600
520	5	v^2 Centauri. . . .	6	13 51 13,63	0,68		51 13,64		— 0,01	3,686
521	1	β Centauri.	5	13 51 58,57	1,07		51 59,57		— 1,00	4,134
522	4,5	τ Virginis.	6	13 53 3,25	0,51	53 3,14	53 3,03	+ 0,11	+ 0,22	3,049
523	5	χ Centauri.	6	13 55 45,93	1,03		55 45,52		+ 0,41	3,617
524	4,5	π Hydræ Con. . .	5	13 56 46,17	0,61	56 46,17	56 46,02	0,00	+ 0,15	3,384
525	2	θ Centauri.	4	13 56 46,02	0,43	56 45,98	56 46,68	+ 0,04	— 0,56	3,491
526	3,4	a Draconis.	4	13 59 49,02		59 49,10	59 48,19	— 0,08	+ 0,83	1,625
527	6	* Virginis.	3	14 1 37,47	0,57		1 36,96		+ 0,51	3,255
528	5	6 Hydræ Con. . .	8	14 3 6 51	0,51		3 6,44		+ 0,07	3,408
529	4	κ Virginis.	8	14 3 53.58	0,22	3 53,61	3 53,54	— 0,03	+ 0,04	3,183
530	4	ι Virginis.	3	14 7 9,91	0,10	7 9,85	7 9,70	+ 0,06	+ 0,21	3,132
531	1	a Bootis.	9	14 7 57,30	0,40	7 57,37	7 57,02	— 0,07	+ 0,28	2,731
532	4,5	ι Lupi.	6	14 8 37,68	0,26		8 37,16		+ 0 52	3,786
533	4	λ Virginis.	5	14 9 58,84	0,39	9 59,00	9 58,49	— 0,16	+ 0,30	3,228
534	5	τ^1 Lupi.	6	14 15 19,89	0,18		15 19,63		+ 0,26	3,797
535	5	τ^2 Lupi.	5	14 15 21,46	0,18		15 20,97		+ 0,49	3,802
536	4	θ Bootis.	6	14 19 26,63	0,56	19 26,50	19 25 72	+ 0,13	+ 0,91	2,015
537	5	ϕ Virginis.	8	14 19 30,26	0,26		19 29,97		+ 0,29	3,088
538	5	σ Lupi.	5	14 21 17,19	0,31		21 17,70		— 0,51	3,979
539	4	ρ Bootis.	6	14 24 32,76	0,15	24 32,75	24 32,70	+ 0,01	+ 0,06	2,592
540	3	η Centauri.	4	14 24 48,73	0,49		24 48,76		— 0,03	3,764
541	5	ρ Lupi.	6	14 26 34,16	0,82		26 35,19		— 1.03	3,975
542	5	σ Bootis.	4	14 27 19,21	0,54		27 18,77		+ 0,44	2,597
543	1	a^2 Centauri. . . .	3	14 28 11,78	0,76		28 18,13		— 6,35	4,470
544	3	a Lupi.	6	14 30 44,17	0,85		30 44,71		— 0,54	3,933
545	3,4	π Bootis.	6	14 32 47,08	0,58	32 47,13	32 46,42	— 0,05	+ 0,66	2,813
546	3,4	ζ Bootis.	5	14 33 4,90	0,26	33 4,88	33 4,32	+ 0,02	+ 0,58	2,855
547	5	C^1 Centauri. . .	5	14 33 20,93	0,43		33 21,25		— 0,32	3,636
548	3	ϵ Bootis.	6	14 37 36,38	0,23	37 30,36	37 35,90	+ 0,02	+ 0,48	2,621
549	5	6 Libræ.	5	14 40 23,13	0,48		40 22,90		+ 0,23	3,511

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				h. m. s.	s.	m. s.	m. s.	s.	s.	s.
550	5	o Lupi.....	6	14 40 39,01	0,63		40 38,52		+ 0,49	+ 3,868
551	3	α^2 Libræ.....	4	14 41 32,56	0,22	41 32,63	41 32,60	— 0,07	— 0,04	3,305
552	3,4	ξ Bootis.....	6	14 43 35,76	0,34	43 35,84	43 35,46	— 0,08	+ 0,30	2,753
553	3,4	β Lupi.....	6	14 47 30,09	0,44		47 30,11		— 0,02	3,883
554	5	ξ^2 Libræ.....	6	14 47 36,77	0,18	47 36,72	47 35,85	+ 0,05	+ 0,92	3,237
555	3	χ Centauri.....	5	14 48 12,31	0,51		48 12,27		+ 0,04	3,857
556	4,5	δ Libræ.....	6	14 51 57,35	0,20	51 57,28	51 57,01	+ 0,07	+ 0,34	3,193
557	5	π Lupi.....	4	14 53 39,40	0,53		53 39,29		+ 0,11	4,031
558	3,4	γ Libræ.....	5	14 54 12,00	0,14	54 11,99	54 11,64	+ 0,01	+ 0,36	3,490
559	5	110 Virginis....	2	14 54 22,06	0,08		54 21,95		+ 0,11	3,024
560	5	ψ Bootis.....	5	14 57 12,32	0,43		57 11,67		+ 0,65	2,580
561	5	c Bootis.....	7	14 59 52,86	0,35		59 52,10		+ 0,76	2,617
562	4	ζ Lupi.....	4	15 0 11,35	0,59		0 12,59		— 1,24	4,254
563	5	β Circini.....	6	15 4 21,40	0,39		4 22,58		— 1,18	4,618
564	5	μ Lupi.....	4	15 6 49,49	0,52		6 49,94		— 0,45	4,119
565	5	χ Bootis.....	6	15 7 25,39	0,40		7 24,99		+ 0,40	2,510
566	2,3	β Libræ.....	2	15 7 55,50	0,09	7 55,49	7 55,21	+ 0,01	+ 0,29	3,218
567	5	ϕ^2 Lupi.....	6	15 12 23,32	0,41		12 23,37		— 0,05	3,797
568	4	μ Bootis.....	8	15 18 6,38	0,23	18 6,50	18 5,93	— 0,12	+ 0,45	2,275
569	4	β Cor. Bor.....	7	15 20 51,85	0,25	20 51,86	20 51,74	— 0,01	+ 0,11	2,483
570	4	γ Lupi.....	3	15 23 54,77	0,22		23 54,72		+ 0,05	3,957
571	4	f^1 Libræ.....	7	15 24 57,19	0,16	24 57,13	24 56,78	+ 0,06	+ 0,41	3,242
572	4,5	γ Libræ.....	3	15 26 4,91	0,62	26 5,13	26 5,24	— 0,22	— 0,33	3,333
573	4,5	40 Libræ.....	6	15 28 17,90	0,39	28 18,02	28 17,55	— 0,12	+ 0,35	3,657
574	5	κ Libræ.....	7	15 32 13,44	0,31	32 13,54	32 13,31	— 0,10	+ 0,13	3,524
575	5	ζ Cor. Bor.....	4	15 33 1,06	0,65		33 0,52		+ 0,54	2,256
576	5	ι Serpentis.....	6	15 34 1,26	0,47		34 0,46		+ 0,80	2,672
577	4,5	λ Serpentis.....	6	15 38 14,94	0,46	38 14,94	38 14,70	0,00	+ 0,24	2,917
578	3,4	β Serpentis.....	6	15 38 23,46	0,31	38 23,29	38 23,12	+ 0,17	+ 0,34	2,757
579	4,5	χ Lupi.....	4	15 40 14,50	0,14	40 14,44	40 14,43	+ 0,06	+ 0,07	3,782
580	4,5	θ Libræ.....	5	15 44 13,00	0,10	44 13,02	44 13,20	— 0,02	— 0,20	3,390
581	4	ρ Scorpii.....	2	15 46 28,21	0,02	46 28,20	46 27,98	+ 0,01	+ 0,23	3,679
582	3,4	π Scorpii.....		15 48 38,70	0,47	48 38,85	48 38,64	— 0,15	+ 0,06	3,606
583	3	δ Scorpii.....	5	15 50 21,26	0,29	50 21,28	50 21,33	— 0,02	— 0,07	3,527
584	4,5	ϵ Cor. Bor.....	4	15 50 35,63	0,27		50 35,59		+ 0,04	2,484
585	4,5	ξ Libræ.....	5	15 55 5,25	0,10	55 5,04	55 4,93	+ 0,21	+ 0,32	3,288
586	2	β Scorpii.....	8	15 55 37,48	0,26		55 37,46		+ 0,02	3,469
587	4,5	ω^1 Scorpii.....	5	15 56 56,19	0,10	56 56,19	56 56,25	0,00	— 0,06	3,496
588	5	δ Trian. Aus...	4	16 0 7,94	0,63		0 9,22		— 1,28	5,363
589	4	ν Scorpii.....	6	16 2 11,22	0,51	2 11,19	2 11,27	+ 0,03	— 0,05	3,469
590	5	n Scorpii.....	6	16 6 26,69	0,26		6 26,20		+ 0,49	3,231
591	5	γ^2 Normæ.....	5	16 7 13,98	0,12		7 13,62		+ 0,36	4,458
592	3	ϵ Ophiuchi....	5	16 9 23,22	0,16	9 23,16	9 23,01	+ 0,06	+ 0,21	3,156
593	5	σ Serpentis....	4	16 13 31,09	0,44		13 31,51		— 0,42	3,088
594	5	ψ Ophiuchi....	6	16 14 13,63	0,56	14 13,55	14 13,50	+ 0,08	+ 0,13	3,495
595	3,4	γ Herculis.....	5	16 14 28,09	0,25	14 28,07	14 27,84	+ 0,02	+ 0,25	2,643

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				h. m. s.	s.	m. s.	m. s.	s.	s.	s.
596	5	χ Ophiuchi	3	16 17 14,36	0,13		17 13,62		+ 0,74	+ 3,461
597	5	α Normæ.....	5	16 20 21,48	0,30		20 21,56		— 0,08	3,895
598	4,5	φ Ophiuchi....	6	16 21 28,67	0,15	21 28,52	21 28,62	+ 0,15	+ 0,05	3,422
599	3	η Draconis.....	3	16 22 43,00	0,36	21 42,90	21 42,27	+ 0,10	+ 0,73	0,792
600	3,4	τ Scorpii.....	6	16 25 22,65	0,20	25 22,59	25 22,59	+ 0,06	+ 0,06	3,715
601	3,4	ζ Ophiuchi	6	16 27 51,74	0,06	27 51,73	27 51,58	+ 0,01	+ 0,16	3,290
602	5	m Scorpii.....	5	16 31 48,55	0,39	31 48,59	31 48,42	— 0,04	+ 0,13	3,456
603	3	ζ Herculis.....	6	16 34 55,08	0,21	34 55,08	34 54,62	0,00	+ 0,46	2,246
604	4	η Aræ.....	5	16 35 14,41	0,42		35 14,94		— 0,53	5,119
605	3	η Herculis.....	5	16 37 6,21	0,31	37 6,35	37 5,56	— 0,14	+ 0,65	2,047
606	5	r Ophiuchi	7	16 40 29,59	0,54		40 29,27		+ 0,32	3,330
607	5	k Herculis.....	5	16 42 7,43	0,54		42 7,21		+ 0,22	2,901
608	5	s Herculis.....	5	16 44 3,45	0,35		44 2,82		+ 0,63	2,336
609	5	q Ophiuchi	3	16 45 34,13	0,16		45 33,95		+ 0,18	3,198
610	5	53 Herculis.....	7	16 46 33,68	0,33		46 33,11		+ 0,57	2,276
611	4	κ Ophiuchi	5	16 49 40,55	0,30	49 40,51	49 40,19	+ 0,04	+ 0,36	2,852
612	5	k Scorpii.....	5	16 53 43,20	0,21		53 43,20		0,00	3,928
613	3	ε Herculis.....	5	16 53 49,61	0,09	53 49,62	53 49,11	— 0,01	+ 0,50	2,293
614	5	60 Herculis.. ..	4	16 57 32,53	0,56		57 32,58		— 0,05	2,771
615	4	η Scorpii.....	5	17 0 3,26	0,67		0 3,70		— 0,44	4,272
616	2,3	η Ophiuchi	6	17 0 41,78	0,38	0 41,72	0 41,58	+ 0,06	+ 0,20	3,426
617	4	μ Draconis.....	3	17 1 50,37	0,11	1 50,34	1 50,05	+ 0,03	+ 0,32	1,242
618	5	37 Ophiuchi....	6	17 4 30,04	0,29		4 29,89		+ 0,15	2,821
619	4,5	A Ophiuchi.....	3	17 4 58,00	0,24		4 58,29		— 0,29	3,671
620	3,4	α Herculis.....	8	17 6 56,73	0,34	6 56,71	6 56,29	+ 0,02	+ 0,44	2,729
621	4,5	o Ophiuchi	3	17 7 56,05	0,04	7 55,92	7 56,57	+ 0,13	— 0,52	3,074
622	3,4	π Herculis.....	5	17 9 9,91	0,26	9 9,97	9 9,66	— 0,06	+ 0,25	2,086
623	4,5	ρ Ophiuchi	5	17 10 52,86	0,33	10 52,82	10 52,49	+ 0,04	+ 0,37	3,567
624	3,4	θ Ophiuchi....	5	17 11 38,46	0,14	11 38,41	11 38,21	+ 0,05	+ 0,25	3,672
625	5	d Ophiuchi.....	4	17 16 34,26	0,66		16 34,28		— 0,02	3,817
626	4	ρ Herculis.....	3	17 17 51,38	0,43	17 51,43	17 50,97	— 0,05	+ 0,41	2,067
627	4,5	σ Ophiuchi	4,5	17 18 7,96	0,54	18 8,13	18 7,92	— 0,17	+ 0,04	2,969
628	3	λ Scorpii.....	3	17 22 8,73	0,42	22 8,59	22 8,71	+ 0,14	+ 0,02	4,060
629	4,5	λ Herculis.....	6	17 23 54,69	0,23	23 54,70	23 54,52	— 0,01	+ 0,17	2,417
630	5	* Scorpii.....	4	17 24 55,45	0,48		24 55,05		+ 0,40	4,119
631	2	α Ophiuchi	4	17 27 5,50	0,23	27 5,62	27 5,20	— 0,12	+ 0,30	2,770
632	5	ξ Serpentis	4	17 27 54,99	0,41		27 54,68		+ 0,31	3,430
633	5	μ Ophiuchi	6	17 28 39,78	0,53	28 39,77	28 39,33	+ 0,01	+ 0,45	3,254
634	3	κ Scorpii.....	3	17 30 48,55	0,18		30 48,18		+ 0,37	4,139
635	4,5	o Serpentis	2	17 31 55,39	0,06	31 55,27	31 55,00	+ 0,12	+ 0,39	3,369
636	4	ι Herculis.....	5	17 34 41,89	0,22	34 41,90	34 41,11	— 0,01	+ 0,78	1,688
637	3	β Ophiuchi	5	17 35 7,63	0,19	35 7,70	35 7,38	— 0,07	+ 0,25	2,960
638	4,5	ι¹ Scorpii.....	3	17 35 46,56	0,17		35 45,89		+ 0,67	4,185
639	5	P Sagittarii.....	5	17 36 55,65	0,60	36 55,65	36 55,27	0,00	+ 0,38	3,768
640	4	ψ Ophiuchi	3	17 39 25,33	0,12	39 25,36	39 25,00	— 0,03	+ 0,33	3,003
641	4	μ Herculis.....	6	17 39 50,92	0,15	39 50,97	39 50,20	— 0,05	+ 0,72	2,366

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				h. m. s.	*s.*	*m. s.*	*m. s.*	*s.*	*s.*	*s.*
642	5	* Sagittarii	5	17 48 14,43	0,31		48 14,19		+ 0,24	+ 3,845
643	5	*b* Sagittarii.. ..	5	17 49 28,60	0,73		49 28,62		— 0,02	3,656
644	4	*v* Ophiuchi	5	17 49 43,54	0,23	49 43,55	49 43,27	— 0,01	+ 0,27	3,297
645	4	*o* Herculis.... .	3	17 50 27,63	0,06	50 27,67	50 26,94	— 0,04	— 0,31	2,052
646	2	*γ* Draconis.....	2	17 52 41,03	0,42	52 41,17	52 40,78	— 0,14	+ 0,25	1,388
647	5	*τ* Ophiuchi	5	17 53 53,05	0,22		53 52,49		+ 0,56	3,260
648	4	*γ* Sagittarii....	5	17 54 57,32	0,20	54 57,42	54 57,54	— 0,10	— 0,22	3,852
649	5	Q Herculis.	4	17 55 9,83	1,07		55 9,13		+ 0,70	2,560
650	4,5	*ρ* Ophiuchi	5	17 56 55,06	0,24	56 55,01	56 54,93	+ 0,05	+ 0,13	3,009
651	4	S Ophiuchi. ..	5	17 59 20,16	0,38		59 20,00		+ 0,16	2,843
652	4	*o* Herculis.	6	18 0 57,24	0,30	0 57,24	0 56,90	0,00	+ 0,34	2,335
653	3,4	*a* Sagittarii.. .	5	18 3 39,68	0,33	3 39,64	3 39,20	+ 0,04	+ 0,48	3,583
654	5	A Herculis.	6	18 5 32,70	0,86		5 32,44		+ 0,26	2,254
655	3,4	*δ* Sagittarii	5	18 10 10,60	0,19	10 10,59	10 10,26	+ 0,01	+ 0,34	3,835
656	5	G Herculis.....	5	18 12 13,49	0,57		12 12,95		+ 0,54	2,463
657	3	*α* Sagittarii	5	18 12 57,25	0,30	12 57,37	12 57,30	— 0,12	— 0,05	3,983
658	4	*λ* Sagittarii	6	18 17 32,52	0,30	17 32,47	17 32,42	+ 0,05	+ 0,10	3,704
659	5	Clypei Sob....	6	18 18 33,86	0,58					3,416
660	3	*δ* Ursæ Min.. .	18	18 26 48,31	2,81	26 49,37	26 41,38	— 1,06	+ 6,93	—19,168
661	1	*α* Lyræ.....	15	18 31 13,20	0,50	31 13,11	31 12,78	+ 0,09	+ 0,42	+ 2,010
662	5	*o* Aquilæ.....	6	18 33 1,32	0,12		33 1,13		+ 0,19	3,282
663	4,5	*p* Sagittarii	3	18 35 5,87	0,04	35 5,80	35 6,14	+ 0,07	— 0,27	3,745
664	5	K Herculis.....	6	18 38 23,30	0,59		38 22,88		+ 0,42	2,578
665	5	*ε* Lyræ.....	2	18 38 44,60	0,10		38 43,91		+ 0,69	1,982
666	3	*β* Lyræ.....	9	18 43 50,63	0,29	43 50,58	43 50,00	+ 0,05	+ 0,63	2,211
667	5	*v* Sagittarii....	7	18 43 57,95	0,26	43 57,89	43 57,64	+ 0,06	+ 0,31	3,623
668	5	*σ* Sagittarii....	5	18 44 47,02	0,64	44 46,99	44 47,01	+ 0,03	+ 0,01	3,722
669	5	*v* Sagittarii....	3	18 44 53,95	0,39	44 54,18	44 54,07	— 0,23	— 0,12	3,621
670	5	O Herculis.	5	18 47 37,28	0,52		47 36,91		+ 0,37	2,528
671	3,4	*ζ* Sagittarii.. ..	6	18 51 51,38	0,30	51 51,44	51 51,19	— 0,06	+ 0,19	3,823
772	3	*γ* Lyræ.....	5	18 52 37,31	0,69	52 37,36	52 36,78	— 0,05	+ 0,53	2,240
673	4.5	*o* Sagittarii	4	18 54 32,85	0,38	54 32,59	54 33,09	+ 0,26	— 0,24	3,592
674	3	*ζ* Aquilæ.....	14	18 57 38,67	0,46	57 38,61	57 38,11	+ 0,06	+ 0,56	2,754
675	5	B Aquilæ.....	5	19 3 30,83	0,40		3 30,27		+ 0,56	3,254
676	5	*d* Sagittarii.....	8	19 7 44,73	0,66	7 44,69	7 44,36	+ 0,04	+ 0,37	3,514
677	5	*η* Lyræ.....	3	19 8 0,23	0 65		7 59,96		+ 0,27	2,038
678	5	*n* Draconis.....	2	19 8 28,32	0,12		8 27,78		+ 0,54	1,133
679	5	1 Vulpeculæ.. .	6	19 8 57,24	0,31		8 57,11		+ 0,13	2,576
680	3	*δ* Draconis.....	10	19 12 29,63	0,36	12 29,69	12 29,12	— 0,06	+ 0,51	0,023
681	4	*κ* Cygni.....	5	19 13 11,59	0,38	13 11,72	13 11,18	— 0,13	+ 0,41	1,381
682	5	*b* Aquilæ.....	5	19 16 54,78	0,17		16 54,32		+ 0,46	2,871
683	3,4	*δ* Aquilæ	6	19 16 58,66	0,19	16 58,58	16 58,33	+ 0,08	+ 0,33	3,007
684	4	*π* Draconis.....	4	19 19 46,80	0,47	19 47,27	19 46,74	— 0,47	+ 0,06	0,326
685	4	*b* Vulpeculæ. ..	5	19 21 40,53	0,36	21 40,55	21 39,80	— 0,02	+ 0,73	2,502
686	3	*β* Cygni.....	5	19 23 54,47	0,38	23 54,42	23 54,06	+ 0,05	+ 0,41	2,416
687	5	K Aquilæ.....	5	19 25 48,59	0,57		25 48,14		+ 0,45	3,308

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				h. m. s.	*s.*	*m. s.*	*m. s.*	*s.*	*s.*	*s.*
688	5	ι Aquilæ.....	4	19 27 58,52	0,43		27 58,62		— 0,10	+ 3,104
689	5	σ Aquilæ.....	6	19 30 51,29	0,31		30 51,57		— 0,28	2,960
690	4	θ Cygni.....	3	19 31 54,32	0,20	31 54,54	31 54,03	+ 0,22	+ 0,29	1,611
691	4	α Sagittæ.....	3	19 32 32,64	0,33	32 32,71	32 32,23	— 0,07	+ 0,41	2,678
692	5	β Sagittæ.....	2	19 33 27,60	0,08		33 27,33		+ 0,27	2,691
693	5	15 Cygni.....	6	19 38 10,99	0,36		38 10,69		+ 0,30	2,154
694	3	γ Aquilæ.....	24	19 38 13,55	0,47	38 13,55	38 13,44	0,00	+ 0,11	2,849
695	3,4	δ Cygni.....	6	19 39 41,35	0,67	39 41,68	39 41,32	— 0,33	+ 0,03	1,868
696	4	δ Sagittæ.....	4	19 39 51,23	0,09	39 51,27	39 50,95	— 0,04	+ 0,28	2,672
697	5	χ Cygni.....	4	19 40 0,97	0,45		40 0,36		+ 0,61	2,271
698	1,2	α Aquilæ.....	29	19 42 32,30	0,36	42 32,29	42 32,11	+ 0,01	+ 0,19	2,924
699	4,5	E Sagittarii.....	6	19 43 35,71	0,90		43 34,96		+ 0,75	4,162
700	5	ξ Aquilæ.....	8	19 46 3,55	0,23		46 3,06		+ 0,49	2,899
701	5	13 Vulpeculæ...	4	19 46 16,84	0,28		46 16,44		+ 0,40	2,545
702	3,4	β Aquilæ.....	23	19 47 0,75	0,26	47 0,79	47 0,60	— 0,04	+ 0,15	2,943
703	5	22 Cygni.....	3	19 49 49,38	0,23		49 49,08		+ 0,30	2,140
704	4,5	γ Sagittæ.....	6	19 51 14,52	0,13	51 14,59	51 14,08	— 0,07	+ 0,44	2,660
705	5	f Vulpeculæ...	7	19 51 55,57	0,43		51 54,96		+ 0,61	2,576
706	5	L^1 Sagittarii....	2	19 53 36,18	0,13		53 35,03		+ 1,15	3,818
707	5	g Vulpeculæ...	4	19 54 8,71	0,43		54 8,09		+ 0,62	2,462
708	5	ρ Draconis.....	6	20 2 1,57	0,41	2 1,99	2 0,63	— 0,42	+ 0,94	0,304
709	3,4	θ Aquilæ.....	6	20 2 35,05	0,58	2 35,02	2 34,88	+ 0,03	+ 0,17	3,095
710	5	66 Draconis....	4	20 2 50,75	0,48		2 50,02		+ 0,73	0,952
711	5	b^2 Cygni.....	3	20 3 9,35	0,47		3 8,71		+ 0,64	2,223
712	4	α^1 Capricorni...	6	20 8 16,61	0,56	8 16,50	8 16,35	+ 0,11	+ 0,26	3,330
713	4	o^2 Cygni.....	3	20 8 18,72	0,29	8 18,70	8 18,34	+ 0,02	+ 0,38	1,886
714	3	α^2 Capricorni....	16	20 8 40,39	0,84	8 40,34	8 40,31	+ 0,05	+ 0,08	3,331
715	4,5	n Vulpeculæ...	5	20 8 46,07	0,29	8 46,12	8 45,76	— 0,05	+ 0,31	2,484
716	4,5	κ Cephei.....	5	20 14 25,59	0,49	14 29,49	14 26,03	— 3,90	— 0,44	1,882
717	3	γ Cygni.....	6	20 16 9,69	0,20	16 10,04	16 9,45	— 0,35	+ 0,24	2,148
718	5	h Cygni.....	6	20 17 6,73	0,45		17 6,63		+ 0,10	2,387
719	5	ρ Capricorni...	3	20 19 12,80	0,11	19 12,84	19 12,33	— 0,04	+ 0,47	3,432
720	5	G Aquilæ.....	6	20 20 48,91			20 48,56		+ 0,35	3,134
721	4,5	i Cygni.....	6	20 22 29,48	0,29	22 29,62	22 29,39	— 0,14	+ 0,09	2,446
722	5	ω^2 Cygni.....	6	20 24 49,48	0,32		24 48,90		+ 0,58	1,854
723	4	ϵ Delphini.....	7	20 25 8,42	0,40	25 8,35	25 8,01	+ 0,07	+ 0,41	2,864
724	5	θ Cephei.....	3	20 26 44,06	0,36		26 43,04		+ 1,02	1,016
725	5	ζ Delphini	6	20 27 24,52	0,34		27 23,98		+ 0,54	2,800
726	5	I Aquilæ.....	4	20 29 36,49	0,78		29 36,20		+ 0,29	3,099
727	4,5	θ Delphini.....	6	20 30 45,50	0,26	30 45,43	30 44,93	+ 0,07	+ 0,57	2,829
728	3,4	α Delphini.....	5	20 31 47,38	0,16	31 47,65	31 47,27	— 0,27	+ 0,11	2,779
729	5	δ Delphini.....	4	20 35 34,36	0,53		35 34,11		+ 0,25	2,800
730	1	α Cygni.....	31	20 35 40,46	0,63	35 40,42	35 39,93	+ 0,04	+ 0,53	2,040
731	4,5	ψ Capricorni...	5	20 36 4,76	0,59	36 4,72	36 5,01	+ 0,04	+ 0,25	3,572
732	4,5	e Aquarii.....	6	20 38 31,61	0,29	38 31,44	38 31,26	+ 0,17	+ 0,35	3,252
733	4	k Aquarii.....	3	20 38 48,87	0,19	38 48,99	38 48,53	— 0,12	+ 0,34	3,170

No.	Mag.	NAMES.	No. of Observations.	Observed A.R. reduced to Jan. 1, 1831.	Difference of Extremes.	Greenwich Catalogue	A.S. Catalogue.	Difference from Greenwich.	Difference from A.S.	Annual Variation.
				h. m. s.	*s.*	*m. s.*	*m. s.*	*s.*	*s.*	*s.*
734	4	γ Delphini.....	6	20 38 49,25	0,33	38 49,16	38 49,93	+ 0,09	— 0,68	+ 2,783
735	5	λ Cygni.....	4	20 40 49,96	0,17		40 49,08		+ 0,88	2,330
736	4,5	μ Aquarii.....	6	20 43 32,23	0,34	43 32,05	43 31,83	+ 0,18	+ 0,40	3,239
737	5	57 Cygni.....	5	20 47 16,19	0,33		47 15,90		+ 0,29	2,115
738	4,5	q Vulpeculæ...	7	20 47 21,69	0,34		47 21,19		+ 0,50	2,552
739	4	ν Cygni.....	6	20 50 52,36	0,27	50 52,65	50 52,13	— 0,29	+ 0,23	2,229
740	5	η Capricorni...	3	20 54 46,67	0,09	54 46,72	54 46,64	— 0,05	+ 0,03	3,430
741	5	γ Equulei.....	4	21 2 7,46	0,34		2 7,19		+ 0,27	2,912
742	3	ζ Cygni.....	3	21 5 44,85	0,09	5 44,87	5 44,27	— 0,02	+ 0,58	2,546
743	5	4 Piscis. Aust...	5	21 7 40,62	0,55		7 39,77		+ 0,85	3,658
744	4,5	σ Cygni.....	7	21 10 47,00	0,24	10 47,10	10 45,91	— 0,10	+ 1,09	2,348
745	5	ι Capricorni...	4	21 12 49,71	0,48	12 49,66	12 49,78	+ 0,05	— 0,07	3,350
746	5	γ Indi.....	3	21 14 8,96	0,38		14 9,21		— 0,25	4,350
747	3	α Cephei.....	3	21 14 32,70	0,46	14 32,44	14 31,66	+ 0,26	+ 1,04	1,416
748	5	6 Cephei.....	7	21 15 51,23	0,74		15 50,55		+ 0,68	1,257
749	4	ζ Capricorni...	6	21 17 0,44	0,56	17 0,36	16 59,96	+ 0,08	+ 0,48	3,441
750	3	β Aquarii.....	6	21 22 39,66	0,34	22 39,39	22 39,31	+ 0,27	+ 0,35	3,162
751	5	g Cygni.....	5	21 23 13,12	0,32		23 12,19		+ 0,93	2,200
752	3	β Cephei.....	2	21 26 26,82	0,22	26 26,93	26 25,88	— 0,11	+ 0,94	0,811
753	5	ε Capricorni...	6	21 27 36,64	0,41	27 36,62	27 36,41	+ 0,02	+ 0,23	3,372
754	5	ρ Cygni.....	5	21 27 37,78	0,17	27 37,84	27 37,50	— 0,06	+ 0,28	2,248
755	5	ξ Aquarii.....	5	21 28 44,97	0,17	28 44,93	28 45,02	+ 0,04	— 0,05	3,192
756	4	γ Capricorni....	5	21 30 43,40	0,52	30 43,21	30 42,94	+ 0,19	+ 0,46	3,322
757	5	41 Capricorni...	5	21 32 22,67	0,40		32 22,78		— 0,11	3,426
758	5	κ Capricorni...	4	21 33 12,61	0,29	33 12,89	33 12,31	— 0,28	+ 0,30	3,353
759	4,5	ι Piscis. Aust..	6	21 34 51,79	0,44	34 51,56	34 51,31	+ 0,23	+ 0,48	3,598
760	2,3	α Pegasi.....	6	21 35 53,20	0,52	35 53,21	35 53,04	— 0,01	+ 0,16	2,942
761	4,5	π^1 Cygni.....	3	21 36 6,25	0,27	36 6,19	36 5,61	+ 0,06	+ 0,64	2,118
762	3,4	δ Capricorni....	6	21 37 42,40	0,14	37 42,28	37 42,11	+ 0,12	+ 0,29	3,304
763	5	θ Piscis. Aust..	5	21 37 48,05	0,08		37 48,17		— 0,12	3,548
764	5	π^2 Cygni.....	7	21 40 33,37	0,57	40 33,72	40 33,08	— 0,35	+ 0,29	2,204
765	5	14 Pegasi.....	6	21 42 22,28	0,64		42 22,36		— 0,08	2,643
766	4	γ Gruis.....	4	21 43 40,40	0,26		43 39,60		+ 0,80	3,657
767	5	μ Capricorni...	6	21 44 4,47	0,38	44 4,64	44 4,00	— 0,17	+ 0,47	3,259
768	5	δ Indi.....	4	21 46 22,00	0,37		46 20,91		+ 1,09	4,151
769	5	ο Aquarii.....	6	21 54 34,31	0,27	54 34,27	54 33,83	+ 0,04	+ 0,48	3,104
770	3	α Aquarii.....	9	21 57 6,12	0,50	57 6,18	57 5,96	— 0,06	+ 0,16	3,082
771	5	ν Pegasi.....	5	21 57 9,37	0,25		57 9,23		+ 0,14	3,018
772	4,5	ι Aquarii.....	8	21 57 18,22	0,39	57 18,19	57 18,24	+ 0,03	— 0,02	3,247
773	2	α Gruis.....	4	21 57 32,74	0,24		57 32,84		— 0,10	3,818
774	5	ξ Cephei.....	3	21 58 54,50	0,21		58 52,84		+ 1,66	1,699
775	4	ι Pegasi.....	3	21 59 8,99	0,15	59 9,03	59 8,93	— 0,04	+ 0,06	2,761
776	4	θ Pegasi.....	6	22 1 40,50	0,36	1 40,50	1 40,63	0,00	— 0,13	3,006
777	5	π^1 Pegasi.....	2	22 1 44,68	0,11		1 45,06		— 0,38	2,650
778	4	π^2 Pegasi.....	7	22 2 29,34	0,76	2 29,33	2 29,61	+ 0,01	— 0,27	2,653
779	5	μ^1 Gruis.....	4	22 5 24,41	0,35		5 23,42		+ 0,99	3,649

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				h. m. s.	*s.*	*m. s.*	*m. s.*	*s.*	*s.*	*s.*
780	5	μ^2 Gruis.....	6	22 6 14,99	0,42		6 14,76		+ 0,23	+ 3,651
781	4,5	θ Aquarii.....	6	22 7 54,79	0,39	7 54,61	7 54,44	+ 0,18	+ 0,35	3,163
782	5	a Lacertæ.....	5	22 8 36,87	0,52		8 35,95		+ 0,92	2,599
783	4,5	ϵ Cephei.....	2	22 8 49,53	0,26	8 49,40	8 48,91	+ 0,13	+ 0,62	2,137
784	5	30 Pegasi.....	6	22 11 57,41	0,22		11 57,04		+ 0,37	3,016
785	4,5	d Pegasi.....	7	22 13 12,22	0,37	13 12,20	13 12,09	+ 0,02	+ 0,13	2,947
786	4,5	b Lacertæ.....	4	22 14 3,46	0,50		14 2,86		+ 0,60	2,458
787	7	* Aquarii.....	4	22 14 39,93	0,28		14 39,64		+ 0,29	3,152
788	5	π Aquarii.....	7	22 16 38,81	0,28		16 38,48		+ 0,33	3,063
789	5	d Lacertæ.....	4	22 17 40,67	0,66		17 39,58		+ 1,09	2,413
790	4	δ^1 Gruis.....	3	22 19 8,20	0,61		19 8,01		+ 0,19	3,625
791	4	ζ Aquarii.....	5	22 20 7,73	0,35	20 7,74	20 7,46	— 0,01	+ 0,27	3,077
792	4	β Piscis. Aust..	4	22 21 52,78	0,12	21 52,87	21 52,81	— 0,09	— 0,03	3,431
793	4,5	δ Cephei.....	6	22 22 54,54	0,41	22 54,68	22 53,65	— 0,14	+ 0,89	2,204
794	4	g Lacertæ.....	3	22 24 20,65	0,04	24 20,73	24 20,45	— 0,08	+ 0,20	2,436
795	5	v Aquarii.....	5	22 25 26,32	0,13	25 26,36	25 26,23	— 0,04	+ 0,09	3,280
796	4	η Aquarii.....	6	22 26 40,38	0,18	26 40,34	26 40,06	+ 0,04	+ 0,32	3,077
797	4	18 Piscis. Aust..	6	22 31 17,68	0,53	31 17,64	31 17,55	+ 0,04	+ 0,13	3,336
798	5	31 Cephei.....	4	22 31 35,16	0,43		31 35,30		— 0,14	1,447
799	3	β Gruis.....	6	22 32 32,26	0,38		32 32,24		+ 0,02	3,617
800	5	30 Cephei.....	4	22 32 40,72	0,85		32 40,34		+ 0,38	2,105
801	3	ζ Pegasi.....	6	22 33 2,18	0,42	33 2,25	33 1,92	— 0,07	+ 0,26	2,981
802	5	ξ Pegasi.....	6	22 38 15,36	0,52		38 14,98		+ 0,38	2,975
803	4	ϵ Gruis.....	3	22 38 18,37	0,11		38 17,35		+ 1,02	3,679
804	4,5	λ Pegasi.....	6	22 38 23,94	0,15	38 23,96	38 24,35	— 0,02	— 0,41	2,873
805	4	μ Pegasi.....	5	22 41 51,31	0,20	41 51,29	41 50,53	+ 0,02	+ 0,78	2,872
806	5	22 Piscis. Aust..	5	22 43 6,86	0,29		43 6,75		+ 0,11	3,362
807	4	λ Aquarii.....	7	22 43 47,74	0,23	43 47,65	43 47,26	+ 0,09	+ 0,48	3,133
808	3	δ Aquarii.....	6	22 45 40,53	0,36	45 40,55	45 40,34	— 0,02	+ 0,19	3,196
809	5,6	ρ Pegasi.....	2	22 46 43,53	0,16		46 42,58		+ 0,95	3,010
810	1	a Piscis. Aust..	23	22 48 17,69	0,50	48 17,65	48 17,65	+ 0,04	+ 0,04	3,311
811	5	ζ Gruis.....	5	22 50 51,73	0,57		50 51,17		+ 0,56	3,608
812	6	χ^2 Piscium....	4	22 51 57,98	0,15		51 57,86		+ 0,12	3,073
813	4	o Andromedæ..	6	22 54 9,75	0,43	54 9,74	54 9,04	+ 0,01	+ 0,71	2,734
814	5	β Piscium.....	6	22 55 16,79	0,40	55 16,66	55 16,30	+ 0,13	+ 0,49	3,049
815	2	β Pegasi.....	2	22 55 35,39	0,07	55 35,48	55 35,25	— 0,09	+ 0,14	2,878
816	2	a Pegasi.....	17	22 56 20,91	0,39	56 20,96	56 20,68	— 0,05	+ 0,23	2,975
817	5	θ Gruis.....	4	22 57 20,05	0,21		57 19,95		+ 0,10	3,422
818	4,5	h Pegasi.....	6	22 58 53,37	0,37	58 53,48	58 53,34	— 0,11	+ 0,03	2,907
819	4,5	c^2 Aquarii.....	6	23 0 25,71	0,38	0 25,57	0 25,57	+ 0,14	+ 0,14	3,208
820	5	ι Gruis.....	3	23 0 45,82	0,69		0 42,20		+ 3,62	3,424
821	5	π Cephei.....	2	23 2 32,45	0,77		2 32,23		+ 0,22	1,875
822	5	u Andromedæ..	6	23 4 49,68	0,20		4 49,16		+ 0,52	2,708
823	5	ϕ Aquarii.....	6	23 5 34,09	0,17	5 34,18	5 33,84	— 0,09	+ 0,25	3,106
824	4	γ Toucanæ	4	23 7 30,93	0,53		7 30,06		+ 0,87	3,577
825	4,5	γ Piscium.....	5	23 8 24,26	0,52	8 24,35	8 24,15	— 0,09	+ 0,11	3,108

No.	Mag.	NAMES.	No. of Observations.	Observed A.R. reduced to Jan. 1, 1831.	Difference of Extremes.	Greenwich Catalogue	A.S. Catalogue.	Difference from Greenwich.	Difference from A.S.	Annual Variation.
				h. m. s.	s.	m. s.	m. s.	s.	s.	s.
826	5	γ App. Sculp. . .	6	23 9 41,14	0,48		9 40,92		+ 0,22	+ 3,261
827	5	8 Andromedæ . .	3	23 9 55,85	0,28		9 55,23		+ 0,62	2,745
828	5	ψ^3 Aquarii	5	23 10 10,07	0,48	10 10,10	10 10,81	— 0,03	— 0,74	3,122
829	5	τ Pegasi	5	23 12 17,04	0,33		12 16,50		+ 0,54	2,952
830	5	b^1 Aquarii.	6	23 14 5,28	0,22		14 4,69		+ 0,59	3,170
831	5	υ Pegasi	6	23 16 57,40	0,54		16 56,89		+ 0,51	2,965
832	5	b^2 Aquarii	5	23 17 9,63	0,68		17 9,04		+ 0,59	3,166
833	5	θ Piscium.	6	23 19 23,94	0,11		19 23,31		+ 0,63	3,046
834	5	s Cephei.	5	23 20 10,54	0,70					2,452
835	5	* Cassiopeæ. . . .	4	23 22 15,58	0,27		22 14,99		+ 0,59	2,722
836	7	ω^3 Piscium	3	23 23 17,39	0,58		23 16,76		+ 0,63	3,076
837	5	b^4 Aquarii.	6	23 24 25,57	0,34		24 25,46		+ 0,11	3,151
838	5	y Pegasi.	5	23 25 1,02	0,34		25 0,66		+ 0,36	2,988
839	5	ι Phœnicis.	5	23 25 57,44	0,49		25 57,63		— 0,19	3,256
840	4,5	λ Andromedæ. .	4	23 29 19,11	0,24	29 19,08	29 18,40	+ 0,03	+ 0,71	2,886
841	5	θ Phœnicis.	7	23 30 21,93	0,53		30 21,32		+ 0,61	3,257
842	5	ω^1 Aquarii.	6	23 31 0,96	0,20		31 0,61	— 0,08	+ 0,35	3,114
843	4,5	i Piscium.	6	23 31 15,60	0,33	31 15,68	31 15,61		— 0,01	3,054
844	5	κ Andromedæ. .	3	23 32 6,41	0,68		32 6,05		+ 0,36	2,914
845	5	A ^{3} Aquarii	6	23 35 25,95	0,31		35 25,65		+ 0,30	3,118
846	5	i Pegasi	6	23 35 30,31	0,56		35 30,49		— 0,18	2,991
847	7	* Piscium.	4	23 36 11,78	0,72		36 11,18		+ 0,60	3,053
848	5	ψ Andromedæ. .	6	23 37 41,05	0,57		37 41,89		— 0,84	2,936
849	5	τ Cassiopeæ. . . .	4	23 38 50,10	0,30		38 49,36		+ 0,74	2,873
850	5	* Draconis.	3	23 39 53,07	0,24		39 52,79		+ 0,28	2,793
851	5	δ App. Sculp. . .	6	23 40 6,88	0,20		40 6,42		+ 0,46	3,133
852	6	21 Piscium.	7	23 40 48,50	0,65		40 48,35		+ 0,15	3,068
853	6,7	* Piscium.	4	23 46 7,89	0,33		46 7,81		+ 0,08	3,069
854	6	26 Piscium.	6	23 46 29,38	0,51		46 29,07		+ 0,31	3,060
855	5	η Toucanæ	6	23 48 39,54	0,38		48 38,43		+ 1,11	3,212
856	5	p Piscium.	5	23 50 1,33	0,35	50 1,23	50 0,63	+ 0,10	+ 0,70	3,073
857	4,5	ω Piscium.	5	23 50 38,34	0,20	50 38,23	50 38,28	+ 0,11	+ 0,06	3,062
858	5	ϵ Toucanæ. . . .	3	23 51 3,69	0,67		51 3,89		— 0,20	3,189
859	5	q Piscium.	4	23 53 9,91	0,41	53 9,95	53 9,04	— 0,04	+ 0,87	3,071
860	4,5	r Piscium.	6	23 53 17,66	0,27	53 17,67	53 17,19	— 0,01	+ 0,47	3,073
861	4	g Ceti.	6	23 55 4,70	0,56	55 4,69	55 4,64	+ 0,01	+ 0,06	3,078
862	5	s Piscium.	7	23 56 41,13	0,24	56 44,16	56 40,82	— 0,03	+ 0,31	3,070
863	7	5 Ceti.	4	23 59 32,78	0,59		59 32,70		+ 0,08	3,068
864	1	α Andromedæ. .	29	23 59 40,17	0,84	59 40,12	59 39,66	+ 0,05	+ 0,51	3,067

In the above 423 comparisons between the Madras and Greenwich Catalogues there are

150	Cases	in which	the difference is within	0″,05
122	—	—	—	0 ,10
60	—	—	—	0 ,15
45	—	—	—	0 ,20

i. e. Out of the 423 comparisons, there are 376 cases in which the difference does not amount to two-tenths of a second of time; of the remaining 46 there are 34 which are within three-tenths of a second; these I have carefully re-examined, and find them affected with a much less *probable* error than this amount; the disagreement no doubt arises from the discrepancies in either Catalogue acting with contrary signs, the 12 cases which exceed three-tenths of a second, and seem to merit some further attention are as follows.

		A.R.	N.P.D.	Difference.
		h. m.	° ′	*s.*
No. 1	ϵ Cassiopeæ	1 42	27 20	+ 0,62
2	* Camelopardali	3 15	30 39	+ 0,48
3	β Eridani	4 59	95 18	— 0,32
4	π Virginis	11 52	82 26	+ 0,69
5	b Sagittarii	17 49	113 47	+ 0,69
6	δ Ursæ Minoris	18 26	3 24	— 1,06
7	π Draconis	19 19	24 36	— 0,47
8	δ Cygni	19 39	45 16	— 0,33
9	ρ Draconis	20 2	22 36	— 0,42
10	κ Cephei	20 14	12 48	— 3,90
11	γ Cygni	20 16	50 17	— 0,35
12	π^2 Cygni	21 40	41 28	— 0,35

No. 1.—Comparing the Greenwich places of ψ and δ Cassiopeæ (Stars situated in the neighbourhood of ϵ) with the Astronomical Society's Catalogue; it appears that the places in the former Catalogue are in excess 1,02*s.* and 0,34*s.* respectively, whereas the place of ϵ is only 0,02*s.* in excess; or in other words the Astronomical Society's Catalogue agrees with the Madras Catalogue in assigning to ϵ Cassiopeæ a place above half a second less than that given in the Greenwich Catalogue.

No. 2.—From a comparison similar to the above, the testimony of * Camelopardali (which follows the Stars under consideration only 1*m.* 2*s.* and is situated within 1°,5 of the same in Polar Distance) is in favor of the Madras Catalogue.

No. 3, 8, 11, 12, require to be re-examined before any thing decisive can be said.

No. 4, 6, 10, the Astronomical Society's Catalogue so strongly confirms the Madras result that we may very safely conclude the error to rest with the Greenwich Catalogue.

No. 5.—The proximity of this Star to the Pole fully accounts for the difference, which is somewhat less than ″,07 of a great Circle.

On inspecting the column "difference from A.S." the numbers though not so small as those in the preceeding column, are nevertheless much within the limits which might be expected from Catalogues brought forward from the observations of 1755 and 1800; out of 863 comparisons which this column affords, there are 615 which do not exceed half a second of time, and among the remaining 248 there are only 51 which exceed one second of time; the latter with one or two exceptions only have been brought forward from the observations of La Caille, these having been made with Instruments capable of but limited accuracy, can throw very little, if any doubt upon the Madras results; not willing however to think too favorably of the Madras Catalogue, I have from the observations of the present year examined a few of the most discordant results, and propose with the observations of next year to furnish the remainder.

The cases most deserving notice are as follows:

No.	9	Disagrees	to the	amount	of	the	Annual	Variation.	
94	—	—	—	—					
118	—	—	—	8″,65				Madras result confirmed by the observations of 1832.	
142	—	—	—	2″,09				Do.	Do.
167	—	—	—	3″,19				Madras result confirmed by the Greenwich Catalogue.	
299	—	—	—	8″,53					
331	—	—	—	−1″,01				Madras result confirmed by the observations of 1832.	
332	—	—	—	+1″,66					
338	—	much	from	*h*	and	*θ*	of	the same constellation.	
341	—	to	the	amount	of	3″,15		Madras result confirmed by the observations in 1832.	
343	—	—	—	1″,56				Do.	Do.
352	—	—	—	1″,37					
369	—	—	—	1″,61					
372	—	—	—	1″,79					
387	—	—	—	2″,15				Madras result confirmed by the observations of 1832.	
389	—	—	—	1″,80					
396	—	—	—	1″,08					
427	—	—	—	1″,98					
451	—	—	—	1″,15					
452	—	—	—	2″,06					
461	—	—	—	1″,36					
478	—	—	—	1″,28					
543	—	—	—	6″,35				Madras result confirmed by the observations of 1832.	
562	—	—	—	1″,24					
563	—	—	—	1″,18					
588	—	—	—	1″,28					

No. 660	Differs	to	the	amount of	6″,93 This disagreement is but small considering the proximity of the Star to the Pole.
774	——	——	——		1″,66
822	——	——	——		3″,62 or the Annual Variation.

MEMORANDUM.—It must be recollected that Right Ascension in the Madras Catalogue is reckoned from the Equinoctial point as assumed in the construction of the Greenwich Catalogue, which is the point assumed by Dr. Maskelyne + 0,20*s*. Now Dr. Maskelyne having assumed the place of α Aquilæ from Bradley and determined the position of the other Stars with reference to this Star, it follows that the places of Stars in the Astronomical Society's Catalogue are not reckoned from the same point as that assumed in the construction of the Madras Catalogue. If Piazzi's Catalogue is reckoned from the Equinoctial point as assumed by Dr. Maskelyne, (in order to render the two Catalogues strictly comparable) it is necessary to subtract 0,20*s*. from the Madras Catalogue or add 0,20*s*. to the Astronomical Society's Catalogue.

North Polar Distance of Stars from the Madras Catalogue, compared with the Greenwich, and Astronomical Society's Catalogue.

No.	Mag.	Names.	A.R.	No. of Observations.	Observed N.P.D. reduced to Jan. 1, 1831.	Difference of Extremes.	Greenwich Catalogue	A.S. Catalogue.	Difference from Greenwich.	Difference from A.S.C.	Annual Variation.
			h. m.		° ′ ″	s.	m. s.	m. s.	s.	s.	s.
1	2,3	β Cassiopeæ....	0 0	5	31 46 57,10	2,08	46 58,91	46 59,51	— 1,81	— 2,41	— 20,043
2	4	ε Phœnicis.....	0 1	5	136 40 44,34	1,45		40 45,66		— 1,32	20,042
3	5	B Andromedæ..	0 1	5	44 52 10,06	3,64		52 6,50		+ 3,56	20,042
4	6	*f* Ceti.....	0 3	4	106 23 43,46	2,35		23 48,00		— 4,54	20,041
5	2,3	γ Pegasi.....	0 4	22	75 45 23,71	4,70	45 22,92	45 21,85	+ 0,79	+ 1,86	20,039
6	6	χ Pegasi.....	0 6	5	70 44 0,56	1,57		43 55,14		+ 5,42	20,036
7	5	θ Andromedæ..	0 8	4	52 15 25,62	3,49		15 25,26		+ 0,36	20,030
8	6,7	36 Piscium.....	0 8	3	82 41 53,74	2,30		41 52,34		+ 1,40	20,031
9	6,7	33 Piscium.....	0 9	5	89 14 56,38	2,34		15 4,54		— 8,16	20,027
10	4	ι Ceti.....	0 11	5	99 45 43,46	3,65	45 40,55	45 37,10	+ 2,91	+ 6,36	20,021
11	5	ζ Tucanæ	0 11	5	155 52 5,56	3,94		54 7,80		—122,24	20,019
12	6	40 Piscium.....	0 11	5	74 41 17,22	2,89		41 12,60		+ 4,62	20,018
13	5,6	*d* Piscium.....	0 12	6	82 44 53,40	3,53	44 56,50	44 53,94	— 3,10	— 0,54	20,016
14	6	9 Ceti.....	0 14	3	103 8 56,53	1,30		8 58,54		— 2,01	20,004
15	6,7	* Ceti.....	0 16	5	93 9 12,53	2,38		9 16,47		— 3,94	19,995
16	5	κ Phœnicis.....	0 18	5	134 37 6,72	2,81		37 0,36		+ 6,36	19,982
17	2	α Phœnicis.....	0 18	8	133 13 25,01	4,88		13 16,17		+ 8,84	19,982
18	6	10 Ceti.....	0 18	5	90 59 10,27	1,35		59 7,35		+ 2,92	19,981
19	6	47 Piscium.....	0 19	8	73 2 32,93	2,45		2 34,05		— 1,12	19,972
20	5	λ Cassiopeæ....	0 22	5	36 24 41,47	3,84		24 31,80		+ 9,67	19,947
21	5	λ¹ Phœnicis....	0 23	5	139 44 21,54	1,27		43 26,36		+ 55,13	19,940
22	4	κ Cassiopeæ....	0 23	5	28 0 4,64	2,13	0 8,34	0 9,70	— 3,70	— 5,06	19,938
23	6,7	51 Piscium.....	0 24	4	83 58 40,60	1,17		58 39,84		+ 0,76	19,936
24	5	β³ Tucanæ.....	0 25	4	153 57 42,79	2,91		57 47,50		— 4,71	19,924
25	6,7	* Piscium.....	0 27	3	77 33 29,33	1,55		33 31,43		— 2,10	19,913
26	4	ζ Cassiopeæ....	0 28	5	37 2 4,93	3,36	2 3,47	2 2,84	+ 1,46	+ 2,09	19,898
27	4,5	π Andromedæ..	0 28	6	57 12 44,43	1,84	12 43,34	12 41,70	+ 1,09	+ 2,73	19,895
28	6	53 Piscium.....	0 28	5	75 41 57,45	1,62		41 54,96		+ 2,49	19,894
29	4	ε Andromedæ..	0 30	4	61 36 25,09	0,63	36 24,00	36 24,99	+ 1,09	+ 0,10	19,876
30	3	δ Andromedæ..	0 30	5	60 3 57,42	2,08	3 52,59	3 51,41	+ 4,83	+ 6,01	19,868
31	3	α Cassiopeæ....	0 31	16	34 23 28,60	4,62	23 27,34	23 27,35	+ 1,26	+ 1,25	19,861
32	6	55 Piscium.....	0 31	5	69 29 23,49	1,40		29 21,94		+ 1,55	19,860
33	6,7	* Ceti.....	0 32	4	95 16 51,57	1,27		16 47,42		+ 4,15	19,847
34	5	μ Phœnicis.....	0 33	5	137 0 48,63	3,37		0 38,13		+ 10,50	19,832
35	6	* Ceti.....	0 33	4	102 43 50,45	0,82		43 53,23		— 2,78	19,827
36	5	π Cassiopeæ....	0 34	5	43 54 3,85	1,88		54 5,85		— 2,00	19,821
37	2,3	β Ceti.....	0 35	5	108 54 53,04	2,60	54 54,73	54 55,02	— 1,69	— 1,98	19,809
38	5	φ¹ Ceti.....	0 35	4	101 31 50,22	1,55		31 53,37		— 3,15	19,801
39	5	η Phœnicis	0 35	5	148 23 23,22	1,57		23 23,34		— 0,11	19,800
40	6	* Ceti.....	0 36	3	112 56 6,09	1,82		56 11,62		— 5,53	19,791
41	4	ζ Andromedæ..	0 38	5	66 39 10,61	2,14	39 12,56	39 12,60	— 1,95	— 1,99	19,763
42	6	60 Piscium.....	0 38	4	84 10 58,08	3,09		10 53,44		+ 4,64	19,759
43	4	η Cassiopeæ....	0 39	5	33 4 58,74	1,05	5 1,23	4 59,73	— 2,49	— 0,99	19,035

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			h. *m.*		*h.* *m.* *s.*	*s.*	*m.* *s.*	*m.* *s.*	*s.*	*s.*	*s.*
44	5	δ Piscium.....	0 40	5	83 20 7,65	3,43		20 6,35		+ 1,30	— 19,740
45	4	ν Andromedæ..	0 40	5	49 50 39,31	1,63	50 34,75	50 37,02	+ 4,56	+ 2,29	19,731
46	6	*i* Piscium.....	0 41	5	63 12 39,61	3,18		12 42,39		— 2,78	19,726
47	5	*m* Ceti.....	0 44	5	92 3 48,60	1,31	3 48,83	3 48,53	— 0,23	+ 0,07	19,669
48	6	66 Piscium.....	0 45	5	71 43 44,76	2,40		43 47,00		— 2,24	19,647
49	6	36 Andromedæ..	0 46	5	67 17 16,18	0,84		17 17,20		— 1,02	19,642
50	3	γ Cassiopeæ....	0 46	9	30 12 5,23	4,39	12 2,08	11 57,11	+ 3,15	+ 8,12	19,632
51	5	* Cephei.....	0 47	5	4 39 17,97	1,14		39 19,21		— 1,24	19,625
52	4	μ Andromedæ..	0 47	5	52 25 7,59	1,95	25 8,87	25 8,73	— 1,28	— 1,14	19,617
53	5	η Andromedæ..	0 48	5	67 29 43,51	1,03		29 45,27		— 1,76	19,602
54	6	*h* Piscium.....	0 49	4	61 55 22,17	3,43		55 23,50		— 1,33	19,593
55	5	α App. Sculp...	0 50	5	120 16 22,26	2,33		16 19,69		+ 2,57	19,560
56	7	* Piscium.....	0 54	5	82 5 20,94	2,90		5 18,11		+ 2,83	19,496
57	4	ε Piscium.....	0 54	7	83 1 15,37	3,06	1 17,31	1 17,31	— 1,94	— 1,94	19,486
58	5,6	ψ¹ Piscium....	0 57	5	69 26 0,67	2,19		26 0,66		+ 0,01	19,435
59	3,4	β Phœnicis	0 58	5	137 37 31,34	1,52		37 22,21		+ 9,13	19,394
60	2,3	α Ursæ Minoris.	0 59	10	1 35 31,54		35 32,00	35 31,58	— 0,46	— 0,04	19,375
61	5	*e* Piscium.....	1 0	5	85 14 50,11	1,66	14 47,76	14 47,38	+ 2,35	+ 2,73	19,368
62	5	φ Andromedæ..	1 0	5	43 39 38,59	3,37		39 41,39		— 2,80	19,367
63	3,4	η Ceti.....	1 0	5	101 4 46,76	3,35	4 48,70	4 44,44	— 1,94	+ 2,32	19,359
64	2	β Andromedæ..	1 0	5	55 16 42,29	3,24	16 38,81	16 36,97	+ 3,48	+ 5,32	19,355
65	4,5	θ Cassiopeæ....	1 1	4	35 45 6,35	1,80	45 6,05	45 7,75	+ 0,30	— 1,40	19,341
66	5	χ Piscium.....	1 2	6	69 52 1,29	3,53		51 57,48		+ 3,81	19,306
67	6,7	34 Ceti.....	1 3	3	93 8 57,60	1,29		9 1,55		— 3,95	19,288
68	6	*b* Ceti.....37	1 6	5	98 49 55,18	3,26		49 55,49		— 0,31	19,221
69	6	39 Ceti.....	1 8	4	93 23 27,64	1,44		23 27,57		+ 0,07	19,167
70	6	*f* Piscium.....	1 9	4	87 16 38,69	2,13		16 33,54		+ 5,15	19,140
71	6	*l* Piscium.....	1 12	3	62 8 49,40	1,20		8 50,23		— 0,83	19,069
72	5	ξ Andromedæ..	1 12	7	45 21 37,50	4,19		21 30,29		+ 7,21	19,052
73	7	* Ceti.....	1 14	5	89 9 27,76	2,10		9 28,40		— 0,64	19,011
74	4,5	ψ Cassiopeæ....	1 14	6	22 45 17,74	3,32	45 20,67	45 21,29	— 2,93	— 3,55	19,006
75	3	δ Cassiopeæ....	1 15	6	30 38 48,51	3,98	38 51,08	38 44,77	— 2,57	+ 3,74	18,986
76	3	θ¹ Ceti.....	1 16	4	99 3 25,56	2,59	3 27,80	3 26,22	— 2,24	— 0,66	18,964
77	5	* Phœnicis	1 17	5	132 22 24,69	1,65		22 27,93		— 3,24	18,918
78	5	*c* Ceti.....	1 17	5	105 28 51,54	2,59		28 45,53		+ 6,01	18,915
79	6,7	* Ceti.....	1 18	3	91 16 44,14	1,65		17			18,900
80	6,7	97 Piscium.....	1 21	5	72 31 10,63	1,89		31 13,05		— 2,42	18,813
81	3	γ Phœnicis.....	1 21	5	134 11 8,67	1,79		11 4,72		+ 3,95	18,805
82	5	μ Piscium.....	1 21	4	84 43 50,84	1,68	43 42,54	43 52,68	+ 8,30	— 1,84	18,795
83	4	η Piscium.....	1 22	6	75 31 42,02	3,38	31 40,41	31 38,84	+ 1,61	+ 3,18	18,761
84	4	δ Phœnicis	1 24	5	139 57 14,94	2,52		56 58,97		+ 15,97	18,706
85	7	* Piscium.....	1 24	5	82 39 36,35	3,70		39 37,66		— 1,31	18,699
86	6	* Piscium.....	1 25	5	72 24 16,35	1,74		24 12,23		+ 4,12	18,660
87	5	υ Andromedæ..	1 27	5	49 26 36,83	2,33		26 34,51		+ 2,32	18,621
88	3,4	R Andromedæ.	1 28	5	42 13 53,95	2,17	13 53,21	13 52,94	+ 0,74	+ 1,01	18,596
89	6	π Piscium.....	1 28	5	78 43 27,91	2,71	43 33,58	43 29,93	— 5,67	— 2,02	18,580

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			h. m.		° ′ ″	*s.*	*m. s.*	*m. s.*	*s.*	*s.*	*s.*
90	1	α Eridani.....	1 31	7	148 5 49,08	1,13		5 53,65		— 4,57	— 18,471
91	7	* Piscium.....	1 32	3	82 5 56,35	2,34		5 56,64		— 0,29	18,462
92	6	ν Piscium.....	1 32	5	85 22 17,90	1,78	22 14,17	22 13,72	+ 3,73	+ 4,18	18,429
93	6	54 Andromedæ..	1 33	5	40 10 2,88	4,38		9 58,85		+ 4,03	18,413
94	5,6	107 Piscium....	1 33	4	70 33 22,29	2,63		33 16,71		+ 5,58	17,835
95	6,7	109 Piscium....	1 36	3	70 45 50,24	0,67		45 47,98		+ 2,26	18,322
96	3,4	τ Ceti.....	1 36	5	106 49 46,43	4,57	49 48,85	49 43,92	— 2,42	+ 2,51	19,144
97	6	o Piscium.....	1 36	5	81 41 44,59	2,73	41 44,97	41 43,96	— 0,38	+ 0,63	18,295
98	6	e App. Sculp...	1 38	5	115 53 58,71	2,02		53 59,46		— 0,75	18,250
99	6,7	4 Arietis.....	1 39	4	73 53 17,83	2,15		53 18,51		— 0,68	18,203
100	5	χ[a] Ceti.....	1 41	5	101 31 31,65	2,90		31 31,98		— 0,33	18,119
101	6	54 Ceti.....	1 42	5	79 47 51,24	1,85		47 49,01		+ 2,23	18,096
102	3,4	α Cassiopeæ....	1 42	6	27 10 0,87	3,90	10 2,03	10 2,33	— 1,16	— 1,46	18,081
103	3	ζ Ceti.....	1 43	5	101 10 22,12	3,30	10 24,50	10 27,54	— 2,38	— 5,42	18,060
104	3,4	α Trianguli.. ..	1 43	5	61 14 53,18	0,91	14 51,90	14 54,85	+ 1,18	— 1,67	18,037
105	4,5	γ * Arietis.....	1 44	3	71 32 16,68	0,07	32 18,83	32 13,20	— 2,15	+ 3,48	18,006
106	5,6	ξ Piscium.....	1 45	3	87 38 56,30	1,54		39 2,48		— 6,18	17,985
107	3	β Arietis..... ..	1 45	5	70 1 20,81	4,00	1 17,91	1 14,77	+ 2,90	+ 6,04	17,966
108	5	φ Phœnicis	1 47	5	133 19 39,64	5,56		19 43,79		— 4,15	17,885
109	5	48 Cassiopeæ...	1 48	4	19 55 9,04	2,60		55 5,72		+ 3,32	17,852
110	5,6	λ Arietis..... ..	1 48	3	67 13 54,94	4,02	13 55,47	13 51,11	— 0,53	+ 3,83	17,839
111	4,5	50 Cassiopeæ...	1 49	5	18 24 6,15	2,94	24 7,21	24 8,32	— 1,06	— 2,17	17,815
112	4	χ Eridani.....	1 49	5	142 27 5,62	1,53		27 16,28		— 10,66	17,805
113	4,5	η * Hydri..	1 51	5	158 28 46,43	2,34		28 52,69		— 6,26	17,753
114	4,5	υ * Ceti.....	1 52	4	111 53 58,79	1,78	54 9,68	53 55,78	—10,89	+ 3,01	17,697
115	5	α Piscium.....	1 53	5	88 3 18,55	3,00	3 21,92	3 18,08	— 3,37	+ 0,47	17,645
116	3	α Hydri...	1 53	4	152 23 37,59	2,10		23 27,46		+ 10,13	17,638
117	3,4	γ Andromedæ..	1 53	5	48 29 4,86	3,68	29 7,53	29 8,38	— 2,67	— 3,52	17,635
118	5	χ Phœnicis....	1 55	4	135 31 47.01	3,58		31 57,53		— 10,52	17,576
119	6	* Arietis.... ..	1 57	3	64 58 50,83	4,17		59			17,483
120	3	α Arietis..	1 58	30	67 20 25,11	3,74	20 26,17	20 24,08	— 1,06	+ 1,03	17,461
121	4	β Trianguli....	1 59	6	55 48 58,87	1,43	48 59,33	48 54,52	— 0,46	+ 4,35	17,381
122	6,7	64 Ceti.....	2 2	4	82 13 30,27	2,15		13 30,03		+ 0,24	17,252
123	5	ξ[1] Ceti.....	2 4	5	81 56 59,96	1,05	56 58,77	56 58,18	+ 1,19	+ 1,78	17,180
124	6	F Ceti.....	2 9	5	97 12 17,19	3,46		12 16,22		+ 0,97	16,974
125	6	θ[1] Arietis.....	2 9	4	70 53 4,15	2,64	53 4,23	53 3,33	— 0,08	+ 0,82	16,966
126	4	φ Eridani.....	2 10	5	142 17 50,12	2,85		17 50,72		— 0,60	16,883
127	5	i Persei..... ..	2 11	4	34 56 5,85	0,71		56 4,66		+ 1,19	16,877
128	6	69 Ceti.....	2 13	5	90 22 52,24	3,90		22 49,05		+ 3,19	16,750
129	6	70 Ceti.....	2 13	5	91 39 27,62	4,45		39 28,43		— 0,81	16,735
130	4,5	* Cassiopeæ 35 H.	2 15	5	23 21 49,61	2,42	21 50,78	21 53,38	— 1,17	— 3,77	16,656
131	6	71 Ceti.....	2 16	6	93 32 53,89	3,02		32 54,56		— 0,67	16,597
132	6	* Arietis.....	2 18	4	80 12 1,81	2,17		11 57,60		+ 4,21	16,535
133	5	ρ Ceti.....	2 18	5	103 3 20,40	1,67		3 19,33		+ 1,16	16,531
134	4	δ Hydri.....	2 19	5	159 25 51,93	4,09		25 52,58		— 0,65	16,481
135	5	ξ[2] Ceti.....	2 19	6	82 18 5,75	2,03	18 5,18	18 7,00	+ 0,57	— 1,25	16,461

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			h. m.		° ′ ″	s.	m. s.	m. s.	s.	s.	s.
136	4,5	κ Eridani.....	2 20	5	138 27 53,16	1,30		28 0,22		— 7,06	— 16,382
137	6,7	26 Arietis.....	2 21	5	70 53 58,05	2,58		53 53,75		+ 4,30	16,362
138	6	ψ Arietis.....	2 21	5	73 2 50,48	3,94		2 48,67		+ 1,81	16,343
139	5	σ Ceti.....	2 24	5	105 59 25,45	2,27		59 18,03		+ 7,42	16,213
140	6	e^1 Ceti.....	2 26	5	98 36 1,53	3,88		36 1,49		+ 0,04	16,094
141	6	* Fornacis.....	2 26	5	118 58 40,18	1,21		58 41,14		— 0,96	16,090
142	4,5	ν Ceti.....	2 27	5	85 9 0,02	2,50	8 54,46	8 52,30	+ 5,56	+ 7,72	16,062
143	4	δ Ceti.....	2 31	5	90 24 20,72	2,39	24 17,90	24 19,38	+ 2,82	+ 1,34	15,859
144	7	* Ceti.....	2 31	3	84 37 12,98	0,91		37 12,23		+ 0,75	15,831
145	4,5	ϵ Ceti.....	2 31	5	102 35 35,91	2,54	35 27,53	35 35,26	+ 8,38	+ 0,65	15,829
146	4	θ Persei.....	2 32	4	41 29 31,39	1,41	29 32,51	29 31,85	— 1,12	— 0,46	15,760
147	5	* Eridani.....	2 33	5	133 37 9,55	1,69		37 11,65		— 2,10	15,723
148	4	α Arietis.....	2 33	4	63 0 57,85	0,48	1 2,14	1 1,04	— 4,29	— 3,19	15,713
149	4,5	ι Eridani.....	2 34	4	130 34 56,63	1,81		34 54,16		+ 2,47	15,688
150	3	γ Ceti.....	2 34	5	87 28 50,29	2,10	28 51,49	28 52,04	— 1,20	— 1,75	15,658
151	5,6	38 Arietis.....	2 36	3	78 16 8,10	1,90		16 9,30		— 1,20	15,593
152	4	μ Ceti.....	2 36	5	80 36 17,67	2,50	36 14,43	36 9,61	+ 3,24	+ 8,06	15,590
153	4	π Ceti.....	2 36	5	104 34 45,87	2,87	34 44,28	34 32,92	+ 1,59	+ 12,95	15,574
154	4	b Arietis.....39	2 38	5	61 27 38,11	3,83	27 36,89	27 35,73	+ 1,22	+ 2,38	15,476
155	5	* Persei.....	2 38	6	34 48 48,22	1,90		48 46,35		+ 1,87	15,446
156	5	π Arietis.....	2 40	5	73 14 33,52	2,86		14 34,06		— 0,54	15,364
157	5	β Fornacis.....	2 42	3	123 7 7,41	2,39		7 17,40		— 9,99	15,242
158	6	σ Arietis.....	2 42	3	75 37 9,26	0,57		37 7,13		+ 2,13	15,234
159	5	τ Persei.....	2 42	5	37 56 7,54	1,41	56 10,08	56 13,00	— 2,54	— 5,46	15,227
160	6	γ^1 Fornacis....	2 42	5	115 15 34,87	3,42		15 28,64		+ 6,23	15,222
161	5	ζ Hydri.....	2 43	5	158 19 41,43	3,20		19 30,67		+ 10,76	15,187
162	4,5	τ^2 Eridani.....	2 44	5	111 42 17,93	3,10	42 16,63	42 11,79	+ 1,30	+ 6,14	15,165
163	7	* Arietis.....	2 44	5	74 12 39,97	4,06		12 37,66		+ 2,31	15,142
164	6	ρ^2 Arietis.....	2 46	3	72 21 29,03	1,66		21 24,11		+ 4,92	14,996
165	6	ρ^3 Arietis.....	2 47	5	72 39 21,01	3,13	39 21,35	39 20,74	— 0,34	+ 0,27	14,961
166	6,7	* Arietis.....	2 47	5	82 18 10,50	1,17		18 9,46		+ 1,04	14,944
167	3	η Eridani.....	2 48	4	99 34 34,42	1,64	34 31,06	34 25,56	+ 3,36	+ 8,86	14,887
168	5	ϵ Arietis.....	2 49	5	69 20 26,79	2,00	20 27,89	20 23,82	— 1,10	+ 2,97	14,806
169	5,6	6 Eridani.....	2 51	5	114 17 25,92	3,22		17 21,83		+ 4,09	14,745
170	4,5	θ^1 Eridani.....	2 51	5	130 59 7,80	2,38		59 8,71		— 0,91	14,669
171	4	γ Persei.....	2 53	3	37 9 46,93	1,10	9 45,67	9 46,26	+ 1,26	+ 0,67	14,627
172	5,6	ρ^1 Eridani.....	2 53	2	98 20 0,68	0,28		19 58,70		+ 1,98	14,610
173	5	* Persei.....	2 53	5	33 57 54,49	1,59		57 58,31		— 3,82	14,609
174	2,3	α Ceti.....	2 53	6	86 34 40,35	2,81	34 42,30	34 40,38	— 1,95	— 0,03	14,575
175	4	ρ Persei.....	2 54	4	51 49 16,71	3,95	49 14,67	49 14,12	+ 2,04	+ 2,59	14,520
176	5	ρ^2 Eridani.....	2 54	3	98 21 16,06	1,37		21 19,09		— 3,03	14,517
177	4	* Persei.....	2 57	5	41 2 21,88	3,24	2 22,61	2 22,60	— 0,73	— 0,72	14,370
178	2,3	β Persei.....	2 57	12	49 42 10,33	2,31	42 7,23	42 5,19	+ 3,10	+ 5,14	14,349
179	5	κ Persei.....	2 58	5	45 47 22,80	2,85		47 24,05		— 1,25	14,292
180	6	o Fornacis.....	3 0	4	118 28 56,34	2,49		29 3,05		— 6,71	14,136
181	4	δ Arietis.....	3 2	4	70 55 6,39	1,15	55 5,43	55 3,99	+ 0,96	+ 2,40	14,053

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			h. m.		° ′ ″	s.	m. s.	m. s.	s.	s.	s.
182	5,6	k^1 Ceti.....	3 4	5	91 50 1,96	3,22		50 0,39		+ 1,57	— 13,916
183	3,4	12 Eridani.....	3 5	5	119 39 30,42	1,95	39 27,50	39 22,98	+ 2,92	+ 7,44	14,689
184	5	ζ Arietis.....	3 5	5	69 35 16,46	3,94	35 15,60	35 12,96	+ 0,86	+ 3,50	13,851
185	4	ζ Eridani.....	3 8	5	99 27 11,75	2,95	27 9,31	27 6,86	+ 2,44	+ 4,89	13,696
186	6	14 Eridani.....	3 8	5	99 47 8,78	3,59		47 5,54		+ 3,24	13,646
187	5,6	k^2 Ceti.....	3 10	5	91 33 2,95	3,45		33 5,25		— 2,30	13,561
188	3,4	16 Eridani.....	3 12	5	112 22 37,48	3,34	22 40,75	22 41,00	— 3,27	— 3,52	13,414
189	2,3	α Persei.....	3 12	29	40 44 54,69	4,71	44 52,31	44 49,72	+ 2,38	+ 4,97	13,397
190	6	κ^2 Ceti.....	3 12	5	86 56 18,60	3,99		56 16,92		+ 1,68	13,396
191	4	e Eridani.....	3 13	4	133 44 10,57	3,28		43 39,22		+ 31,35	13,346
192	6	65 Arietis.....	3 14	3	69 48 9,93	1,36		48 3,37		+ 6,56	13,239
193	4	* Camelopardi..	3 15	5	30 39 29,46	4,88	39 27,78	39 28,71	+ 1,68	+ 0,75	13,191
194	4,5	* Camelopardi..	3 16	5	31 42 57,98	2,76	42 58,98	42 58,84	— 1,00	— 0,86	13,123
195	4	ξ Tauri.....	3 18	5	80 51 44,85	2,84	51 42,75	51 41,49	+ 2,10	+ 3,36	13,019
196	6,7	66 Arietis.....	3 19	5	67 47 1,66	2,39		47 1,83		— 0,17	12,982
197	5	σ Persei.....	3 19	5	42 35 42,86	3,17		35 46,90		— 4,04	12,974
198	6	s Tauri.....	3 21	3	79 14 59,20	0,56		14 51,88		+ 7,32	12,806
199	4,5	17 Eridani.....	3 22	4	95 39 38,67	4,32	39 36,56	39 35,71	+ 2,21	+ 2,96	12,736
200	6,7	t Tauri.....	3 23	5	81 12 12,58	3,68		12 11,08		+ 1,50	12,654
201	5	z Eridani.....	3 24	4	131 56 38,43	2,58		56 29,53		+ 8,90	12,602
202	6	7 Tauri.....	3 24	5	66 6 30,74	2,94		6 31,05		— 0,31	12,588
203	5	ψ Persei.....	3 24	5	42 22 37,81	1,23		22 43,11		— 5,30	12,584
204	4	ϵ Eridani.....	3 25	5	100 2 11,48	3,87	2 7,94	2 8,10	+ 3,54	+ 3,38	12,550
205	4	t^2 Eridani.....	3 26	5	112 12 17,53	5,68	12 16,24	12 15,52	+ 1,29	+ 2,01	12,458
206	6	9 Tauri.....	3 27	6	67 21 15,13	3,15		21 11,89		+ 3,24	12,409
207	5	E Tauri.....	3 28	8	90 8 28,23	2,80		8 20,51		+ 7,72	12,325
208	3,4	δ Persei.....	3 31	5	42 45 38,34	1,01	45 39,13	45 41,53	— 0,79	— 3,19	12,142
209	5	y Eridani.....	3 31	5	130 50 0,99	1,98		49 59,77		+ 1,22	12,132
210	4,5	ν Persei.....	3 34	5	47 57 43,36	0,53	57 47,12	57 45,62	— 3,76	— 2,26	11,946
211	4	* Persei.....	3 34	5	58 15 12,73	2,14		15 14,44		— 1,71	11,944
212	4,5	b Pliedum.....	3 35	4	66 25 27,52	0,42	25 28,35	25 23,12	— 0,83	+ 4,40	11,866
213	5	e Pliedum.....	3 35	4	66 4 8,79	0,99	4 11,95	4 6,30	— 3,16	+ 2,49	11,845
214	3,4	δ Eridani.....	3 35	5	100 20 28,40	2,89	20 30,63	20 24,44	— 2,23	+ 3,96	11,243
215	5	δ Fornacis.....	3 35	5	122 28 56,43	4,06		28 55,90		+ 0,53	11,817
216	3	η Tauri.....	3 37	5	66 25 24,42	3,56	25 26,95	25 26,18	— 2,53	— 1,76	11,682
217	5	π Eridani.....	3 38	4	102 38 11,41	1,44		38 12,52		— 1,11	11,631
218	5	f Pliedum.....	3 39	4	66 28 10,75	3,85		28 11,59		— 0,84	11,563
219	5	m^1 Eridani.....	3 39	5	113 45 10,75	2,82		45 14,46		— 3,71	10,939
220	5	m^2 Eridani.....	3 40	5	114 24 12,68	5,12		24 8,61		+ 4,07	11,470
221	5	g Eridani.....	3 43	5	126 42 57,11	1,51		42 56,30		+ 0,81	11,273
222	3,4	ζ Persei.....	3 43	5	58 37 29,05	1,46	37 30,56	37 34,02	— 1,51	— 4,97	11,247
223	5	32 Eridani.....	3 46	5	93 27 34,71	2,77		27 35,45		— 0,74	11,080
224	3,4	ϵ Persei.....	3 46	5	50 29 13,49	1,76	29 11,65	29 10,56	+ 1,84	+ 2,93	11,028
225	5	i Eridani.....	3 47	5	125 14 15,01	1,83		14 10,45		+ 4,56	10,976
226	5	ξ Persei.....	3 48	5	54 42 13,57	2,50		42 9,36		+ 4,21	10,920
227	2,3	γ * Eridani.....	3 50	7	103 59 39,01	3,88	59 41,33	59 39,14	— 2,32	— 0,13	10,762

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			h. m.		° ′ ″	s.	m. s.	m. s.	s.	s.	s.
228	6,7	* Tauri.....	3 51	5	72 17 20,04	1,64		17 19,59		+ 0,45	— 10,693
229	4	λ Tauri.....	3 51	5	77 59 32,36	2,21	59 36,56	59 30,48	— 4,20	+ 1,88	10,676
230	5	*k* Eridani.....	3 53	4	114 30 1,65	1,20		29 57,87		+ 3,78	10,571
231	5	35 Eridani.....	3 53	5	92 1 46,59	2,39		1 45,76		+ 0,83	10,552
232	5	*ν* Tauri.....	3 54	5	84 29 8,14	0,83		29 5,32		+ 2,82	10,463
233	5	A^1 Tauri.....	3 55	5	68 23 8,57	1,72	23 13,08	23 14,47	— 4,51	— 5,90	10,424
234	6,7	A^2 Tauri.....	3 55	5	68 27 10,58	0,68		27 11,83		— 1,25	10,376
235	5	δ Reticuli.....	3 56	5	151 52 45,10	1,23		52 28,70		+ 16,40	10,318
236	6	41 Tauri.....	3 56	5	62 51 43,57	2,86		51 44,80		— 1,23	10,308
237	5	*c* Persei.....	3 56	5	42 44 49,64	1,66		44 53,89		— 4,25	10,297
238	5	γ Reticuli.....	3 58	5	152 37 57,36	2,16		37 53,96		+ 3,40	10,140
239	6,7	* Tauri.....	4 0	3	77 3 20,61	0,69		3 19,74		+ 0,87	10,056
240	6,7	P Tauri.....	4 0	5	63 58 0,85	1,83		58 5,57		— 4,72	9,984
241	5,6	37 Eridani.....	4 2	5	97 22 17,70	1,72		22 16,14		+ 1,56	9,863
242	4,5	μ Persei.....	4 2	5	42 1 46,27	4,26	1 44,62	1 48,22	+ 1,65	— 1,95	9,836
243	4,5	*o* Eridani.....	4 4	5	97 17 3,75	4,15	17 4,32	17 2,57	— 0,57	+ 1,18	9,750
244	5	*b* Persei.....	4 5	5	40 7 47,01	1,49		7 45,73		+ 1,28	9,603
245	5	μ Tauri.....	4 6	4	81 32 15,31	1,09		32 13,68		+ 1,63	9,540
246	5	A Eridani.....	4 6	5	100 40 56,14	2,98		40 51,59		+ 4,55	9,540
247	5,6	ω^2 Tauri.....	4 7	5	69 50 42,99	1,81		50 36,69		+ 6,30	9,463
248	5	*d* Eridani.....	4 7	5	97 55 13,33	2,62		55 12,55		+ 0,78	5,852
249	7	51 Tauri.....	4 8	5	68 50 25,43	4,03		50 25,97		— 0,54	9,384
250	5	*a* Horologii.....	4 8	5	132 42 50,59	1,62		42 47,52		+ 3,07	9,381
251	3,4	γ Tauri.....	4 10	5	74 47 17,04	1,93	47 13,98	47 14,17	+ 3,06	+ 2,87	9,245
252	6,7	* Tauri.....	4 11	3	76 32 45,86	1,37		32 43,58		+ 2,28	9,152
253	3,4	X Eridani.....	4 11	5	124 12 56,07	1,82	12 57,00	12 55,78	— 0,93	+ 0,29	9,142
254	4	γ Doradus.....	4 12	4	141 54 59,08	2,04		55 18,97		— 19,89	9,133
255	3,4	*a* Reticuli.....	4 12	4	152 53 52,83	2,55		53 37,38		+ 15,45	9,080
256	4	δ^1 Tauri.....	4 13	5	72 51 37,25	2,49	51 39,36	51 33,04	— 2,11	+ 4,21	9,011
257	5	ε Reticuli.....	4 14	5	149 42 39,64	3,88		42 39,08		+ 0,56	8,977
258	4,5	δ^2 Tauri.....	4 14	5	72 57 13,13	1,38	57 16,86	57 12,62	— 3,73	+ 0,61	8,919
259	5	δ^3 Tauri.....	4 16	4	72 27 55,73	2,37	27 57,44	27 54,95	— 1,71	+ 0,78	8,813
260	5	θ Reticuli.....	4 16	5	153 39 56,81	6,22		39 56,34		+ 0,47	8,805
261	5	υ^1 Tauri.....	4 16	5	67 34 34,42	3,32		34 37,12		— 2,70	8,775
262	5	π Tauri.....	4 17	5	75 40 33,97	4,84		40 29,07		+ 4,90	8,707
263	4,5	43 Eridani.....	4 18	5	124 24 51,50	3,33	24 49,10	24 50,81	+ 2,40	+ 0,69	8,656
264	4	ε Tauri.....	4 19	5	71 12 5,28	2,93	12 6,02	12 4,28	— 0,74	+ 1,00	8,574
265	5	θ^1 Tauri.....	4 19	5	74 25 12,56	1,48	25 12,68	25 7,13	— 0,12	+ 5,43	8,560
266	6	*b* Tauri.....	4 19	5	77 20 2,14	3,26		20 2,06		+ 0,08	8,525
267	5	η Reticuli.....	4 20	5	153 47 15,68	2,93		47 17,72		— 2,04	8,465
268	6	85 Tauri.....	4 20	6	74 31 9,28	3,05		31 0,70		+ 8,58	8,299
269	5	ρ Tauri.....	4 24	5	75 31 6,94	2,20		30 57,72		+ 9,22	8,136
270	6	46 Eridani.....	4 25	5	97 5 59,27	2,83		5 58,44		+ 0,83	8,022
271	5	δ Cæli Scalp...	4 26	5	135 19 15,82	4,64		19 18,21		— 2,39	8,022
272	5	47 Eridani.....	4 26	5	98 35 23,66	3,63		35 26,46		— 2,80	7,991
273	1	*a* Tauri.....	4 26	44	73 50 13,39	4,60	50 15,77	50 11,71	— 2,38	+ 1,68	7,979

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			h. m.		° ′ ″	s.	m. s.	m. s.	s.	s.	s.
274	5	d Tauri.....	4 26	5	80 11 33,14	1,17		11 36.02		— 2,88	— 7,967
275	6	k^3 Eridani.....	4 28	5	89 21 1,89	2,51		20 56,12		+ 5,77	7,794
276	5	c^1 Tauri.....	4 29	5	77 50 6,52	2,02		50 6,57		— 0,05	7,778
277	3	o^2 Eridani.....	4 29	7	120 54 48,79	5,53	54 51,20	54 49,14	— 2,41	— 0,35	7,755
278	3	α Doradus.....	4 30	5	145 23 54,23	2,78		23 41,40		+ 12,83	7,644
279	4	53 Eridani.....	4 30	5	104 38 25,82	2,70	38 24,26	38 19,84	+ 1,56	+ 5,98	7,638
280	5	c^2 Tauri.....	4 31	5	78 8 23,17	3,52		8 28,36		— 5,19	7,622
281	6	* Eridani.....	4 31	4	104 41 36,57	2,39		41 29,69		+ 6,88	7,548
282	5	r Tauri.....	4 32	5	67 22 27,60	2,06	22 28,76	22 27,64	— 1,16	— 0,04	7,504
283	4	51 Eridani.....	4 33	4	110 0 9,52	1,07	0 6,37	0 1,91	+ 3,15	+ 7,61	7,426
284	6	? Eridani.....	4 33	5	114 49 9,78	2,54		49 3,05		+ 6,73	7,423
285	4,5	α Cæli Sculp...	4 35	5	132 11 26,84	3,32		11 23,85		+ 2,99	7,257
286	5	β Cæli Sculp...	4 36	5	127 28 41,79	1,21		28 50,65		— 8,86	7,179
287	5	μ Eridani.....	4 37	5	93 34 11,14	1,66		34 11,56		— 0,42	7,101
288	4,5	* Camelopard...	4 37	5	23 57 25,17	4,75	57 29,19	57 27,78	— 4,02	— 2,61	7,084
289	6	^{1} Eridani.....	4 40	5	118 23 52,06	3,84		23 51,60		+ 0,46	6,884
290	4	q Orionis.....	4 41	5	83 20 24,42	4,72	20 27,61	20 28,19	— 3,19	— 3,77	6,804
291	5	π^1 Orionis.....	4 41	5	81 23 49,22	0,97	23 49,23	23 48,15	— 0,01	+ 1,07	6,744
292	4	r Orionis.....	4 42	5	84 41 30,28	0,90	41 27,13	41 24,24	+ 3,15	+ 6,04	6,677
293	5	o^1 Orionis.....	4 43	5	76 2 18,53	3,92		2 17,06		+ 1,47	6,615
294	5	5 Camelopard...	4 44	5	36 31 45,61	2,38		31 46,77		— 1,16	6,554
295	5	ω Eridani.....	4 45	4	95 44 33,87	4,32		44 26,30		+ 7,57	6,480
296	4,5	z Orionis.....	4 45	5	87 50 32,80	2,18	50 35,72	50 31,48	— 2,92	+ 1,32	6,410
297	4	ϵ Aurigæ.....	4 46	5	57 6 36,28	2,34		6 33,14		+ 3,14	6,369
298	5	o^2 Orionis.....	4 47	5	76 45 34,91	3,88		45 31,62		+ 3,32	6,292
299	5	ω Aurigæ.....	4 48	5	52 22 26,57	2,18		22 24,91		+ 1,66	6,216
300	4,5	d^1 Camelopard..	4 48	5	29 49 3,42	3,74	49 2,56	49 0,33	+ 0,86	+ 3,09	6,166
301	4	ϵ Aurigæ.....	4 50	5	46 26 10,86	1,37	26 11,50	26 10,40	— 0,64	+ 0,46	6,045
302	4	ζ Aurigæ.....	4 51	5	49 10 49,36	1,73	10 50,13	10 49,42	— 0,77	— 0,06	5,976
303	5	63 Eridani.....	4 52	5	100 31 1,15	5,79		31 0,23		+ 0,92	5,877
304	4,5	i Tauri.....	4 53	5	68 39 30,03	3,55	39 33,38	39 31,72	— 3,35	— 1,69	5,782
305	5	ψ Eridani.....	4 53	5	97 25 39,99	3,34		25 39,28		+ 0,71	5,760
306	4	η Aurigæ.....	4 55	3	49 0 12,43	2,49	0 13,43	0 13,18	— 1,00	— 0,75	5,642
307	5	η^1 Orionis.....	4 55	5	74 50 22,80	1,81		50 17,10		+ 5,70	5,621
308	5,6	* Leporis.....	4 55	3	116 31 10,64	2,80		31 8,24		+ 2,40	5,588
309	5	m Tauri.....	4 57	5	71 35 21,81	4,81	35 22,33	35 19,35	— 0,52	+ 2,46	5,405
310	4	κ Leporis.....	4 58	5	112 36 11,26	5,59	36 15,35	36 7,67	— 4,09	+ 3,59	5,335
311	5	γ^1 Cæli Sculp...	4 58	5	125 43 10,29	4,16		43 6,56		+ 3,73	5,331
312	3	β Eridani.....	4 59	5	95 18 43,92	2,01	18 41,62	18 39,19	+ 2,30	+ 4,73	5,230
313	5	η^2 Orionis.....	4 59	5	74 37 36,56	2,74		37 27,80		+ 8,76	5,190
314	6	68 Eridani.....	5 0	3	94 40 53,46	2,19		40 53,20		+ 6,26	5,162
315	4	λ Eridani.....	5 1	5	98 58 37,39	1,60	58 37,20	58 36,95	+ 0,19	+ 0,44	5,102
316	5	α Aurigæ.....	5 2	5	51 43 31,18	1,13		43 35,01		— 3,83	5,035
317	1	α Aurigæ.....	5 4	40	44 11 2,23	6,60	11 0,94	11 2,86	+ 1,29	— 0,63	4,837
318	4,5	ϵ Leporis.....	5 4	4	102 4 43,09	1,82	4 43,53	4 38,39	— 0,44	+ 4,70	4,818
319	5	μ Leporis.....	5 5	5	106 24 40,48	2,98		24 39,24		+ 1,24	4,739

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			h. m.		° ′ ″	s.	m. s.	m. s.	s.	s.	s.
320	4	* Orionis.....	5 5	5	98 21 10,20	2,13	21 12,38	21	— 2,18		— 4,732
321	1	β Orionis.....	5 6	28	98 24 9,71	4,08	24 12,38	24 10,04	— 2,67	— 0,33	4,647
322	5	λ Aurigæ.....	5 7	5	50 3 44,06	4,67		3 36,78		+ 7,28	4,578
323	4	τ Orionis.....	5 9	5	97 2 0,04	5,17	2 2,02	2 0,51	— 1,98	— 0,47	4,393
324	5	o Columbæ....	5 11	5	125 3 59,48	2,17		3 40,71		+ 18,77	4,223
325	4,5	λ Leporis.....	5 11	5	103 21 25,98	3,43	21 27,38	21 25,24	— 1,40	+ 0,74	4,189
326	5	m Orionis.....	5 14	5	86 37 31,38	3,22		37 30,69		+ 0,69	4,004
327	2	β Tauri.....	5 16	32	61 32 36,45	4,61	32 37,19	32 38,18	— 0,74	— 1,73	3,863
328	4,5	η Orionis.....	5 16	5	92 33 32,31	6,17	33 34,64	33 33,78	— 2,33	— 1,47	3,830
329	2	γ Orionis.....	5 16	6	83 48 33,62	4,30	48 38,01	48 39,08	— 4,39	— 5,46	3,823
330	5	φ Aurigæ.....	5 16	5	55 40 40,47	1,68		40 41,58		— 1,11	3,790
331	5	o Tauri.....	5 17	5	68 12 53,98	2,84	12 55,08	12 51,58	— 1,10	+ 2,40	3,702
332	5	ψ² Orionis.....	5 18	5	87 3 27,10	3,41	3 29,10	3 27,05	— 2,00	+ 0,05	3,658
333	4	β Leporis.....	5 21	5	110 54 1,85	2,31	54 0,20	53 57,42	+ 1,65	+ 4,43	3,397
334	5	t Orionis.....	5 21	5	91 13 56,82	0,93		13 54,31		+ 2,51	3,387
335	5	χ Aurigæ.....	5 22	5	57 56 27,89	4,57		56 32,30		— 4,41	3,337
336	5	A Orionis.....	5 22	5	84 11 17,00	4,33		11 13,21		+ 3,79	3,335
337	2	δ Orionis.....	5 23	5	90 25 55,99	2,19	25 53,30	25 53,15	+ 2,69	+ 2,84	3,194
338	5	ν Orionis.....	5 24	2	97 25 56,61	0,01		25 58,68		— 2,07	3,160
339	4	ε Columbæ.....	5 25	5	125 35 59,06	3,26		35 53,58		+ 5,48	3,034
340	3,4	α Leporis.....	5 25	6	107 56 54,64	3,96	56 57,00	56 57,22	— 2,36	— 2,58	3,029
341	4,5	φ¹ Orionis.....	5 25	5	80 37 59,67	3,36		37 56,02		+ 3,65	3,007
342	4	λ Orionis.....	5 26	5	80 11 15,97	1,33	11 11,42	11 7,03	+ 4,55	+ 8,04	2,982
343	5	c¹ Orionis.....	5 27	5	94 57 27,33	2,40		57 19,36		+ 7,97	2,877
344	3,4	ι Orionis.....	5 27	4	96 1 37,13	1,73	1 39,88	1 32,72	— 2,75	+ 4,41	2,865
345	3,4	ζ Tauri.....	5 27	6	68 58 3,75	1,51	58 6,49	58 4,68	— 2,74	— 0,93	2,835
346	5	φ² Orionis.....	5 28	3	80 48 30,14	4,10		48 30,50		— 0,36	2,827
347	2,3	ε Orionis.....	5 28	10	91 19 0,29	4,75	19 0,90	18 59,85	— 0,61	+ 0,44	2,825
348	5	l Aurigæ.....	5 28	5	59 37 3,67	2,81		36 52,54		+ 11,13	2,814
349	4	σ Orionis.....	5 30	5	92 42 13,74	2,55	42 16,36	42 11,70	— 2,62	+ 2,04	2,598
350	5	d Orionis.....	5 31	5	97 18 49,67	2,77		18 46,83		+ 2,84	2,558
351	4	β Doradus.....	5 32	4	152 36 4,95	3,80		36 2,93		+ 2,02	2,429
352	3	ζ Orionis.....	5 32	5	92 2 17,39	5,07	2 20,34	2 19,06	— 2,95	— 1,67	2,427
353	2	α Columbæ.....	5 33	40	124 10 7,42	7,02	10 9,70	10 7,88	— 2,28	— 0,46	2,313
354	4	γ Leporis.....	5 37	5	112 30 31,26	3,25	30 33,05	30 32,56	— 1,79	— 1,30	1,976
355	5	B Tauri.....	5 39	4	65 29 51,91	3,24	29 52,65	29 48,79	— 0,74	+ 3,12	1,871
356	4,5	ζ Leporis.....	5 39	5	104 53 31,16	1,98	53 28,10	53 25,26	+ 3,06	+ 5,90	1,812
357	5	μ Columbæ.....	5 40	5	122 22 32,16	2,05		22 31,03		+ 1,13	1,775
358	3	κ Orionis.....	5 40	5	99 44 13,01	1,72	44 10,41	44 6,06	+ 2,60	+ 6,95	1,774
359	5	ν Aurigæ.....	5 40	5	50 54 39,28	2,39		54 39,67		— 0,39	1,772
360	5	31 Camelopard...	5 49	5	30 9 49,08	0,92		9 44,16		+ 4,92	1,770
361	5	ξ Aurigæ.....	5 41	4	34 20 42,28	5,30		20 37,31		+ 4,97	1,694
362	4,5	136 Tauri....C.	5 43	5	62 26 8,64	5,53	26 10,10	26 12,63	— 1,46	— 3,99	1,517
363	5	δ Leporis.....	5 44	5	110 53 57,44	1,80		53 56,86		+ 0,58	0,777
364	5	χ¹ Orionis.....	5 44	5	69 45 49,41	2,50	45 47,07	45 46,61	+ 2,34	+ 2,80	1,371
365	5	δ Doradus.....	5 44	6	155 47 58,77	3,86		47 55,48		+ 3,29	1,357

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			h. m.		° ′ ″	*s.*	*m. s.*	*m. s.*	*s.*	*s.*	*s.*
366	3	β Columbæ.....	5 45	5	125 50 13,48	5,16		50 21,90		— 8,42	— 1,314
367	3,4	δ Aurigæ.....	5 46	5	35 44 25,98	2,00	44 22,76	44 24,69	+ 3,22	+ 1,29	1,265
368	1	α Orionis.....	5 46	43	82 37 53,39	4,71	37 54,90	37 54,64	— 1,51	— 1,25	1,226
369	2	β Aurigæ.....	5 47	6	45 4 51,66	4,53	4 46,75	4 47,51	+ 4,91	+ 4,15	1,131
370	5	π Aurigæ.....	5 47	5	44 5 17,72	3,87		5 18,72		— 1,00	1,109
371	4	0 Aurigæ.....	5 48	5	52 48 28,87	3,56	48 30,37	48 27,98	— 1,50	+ 0,89	1,038
372	4	η Leporis.....	5 49	5	104 12 14,49	1,64	12 18,10	12 11,22	— 3,61	+ 3,27	0 991
373	5	ε Doradus.....	5 50	5	156 56 38,62	5,17		56 52,91		— 14,29	0,870
374	4	γ Columbæ.....	5 52	5	125 18 25,29	3,47		18 22,60		+ 2,69	0,742
375	5	μ Orionis.....	5 53	5	80 21 41,15	4,8	21 35,93	21 37,93	+ 5,22	+ 3,22	0,610
376	5	H Geminorum...	5 54	5	66 44 8,14	3,26	44 9,27	44 7,18	— 1,13	+ 0,96	0,543
377	5	χ 3 Orionis.....	5 54	5	69 52 0,99	5,28		51 56,59		+ 4,40	0,540
378	5,6	3 Monocerotis..	5 54	4	100 36 25,15	2,43		36 23,86		+ 1,29	0,539
379	4,5	ν Orionis.....	5 58	11	75 13 12,44	3,37	13 7,41	13 3,01	+ 5,03	+ 9,43	0,187
380	4,5	0 Leporis.....	5 58	7	104 55 37,47	1,72	55 35,58	55 39,72	+ 1,89	— 2,25	0,134
381	5	* Camelopard...	6 0	5	20 38 12,01	4,98		38 6,43		+ 5,58	+ 0,009
382	5	40 Camelopard..	6 0	4	29 58 6,99	3,24		58 1,03		+ 5,96	0,034
383	5	0 Columbæ.....	6 2	4	127 14 1,61	3,27		14 2,75		— 1,14	0,148
384	5	α Lyncis.....	6 2	4	28 26 32,38	2,14		26 38,53		— 6,15	0,195
385	5	ξ Orionis.....	6 2	4	75 45 43,53	4,19		45 40,54		+ 2,99	0,199
386	4	κ Aurigæ.....	6 4	5	60 26 56,45	2,74	26 53,18	26 57,24	+ 3,27	— 0,79	0,396
387	4,5	η Geminorum...	6 5	10	67 27 5,25	2,25	27 9,07	27 7,49	— 3,82	— 2,24	0,403
388	4,5	δ Lyncis.....	6 5	7	30 56 26,79	3,60	56 26,28	56 25,74	+ 0,51	+ 1,05	0,403
389	4,5	α Monocerotis..	6 6	5	96 13 48,18	3,54	13 47,78	13 42,87	+ 0,40	+ 5,31	0,574
390	5,6	k 2 Orionis.....	6 7	5	77 41 17,01	6,56		41 15,27		+ 1,74	0,603
391	4,5	κ Columbæ.....	6 11	5	125 5 25,11	3,30		5 21,08		+ 4,03	0,918
392	5	d Aurigæ.....	6 12	5	40 38 14,32	1,96		38 15,07		— 0,75	1,008
393	3	μ Geminorum...	6 13	19	67 24 26,75	5,14	24 28,57	24 26.36	— 1,82	+ 0,39	1,107
394	3	ζ Canis Maj....	6 14	5	119 59 41,62	1,94	59 37,60	59 42,97	+ 4,02	— 1,35	1,205
395	6	* Monocerotis..	6 14	3	86 9 26,77	2,71		9 25,30		+ 1,47	1,254
396	2,3	β Canis Maj....	6 15	27	107 52 38,79	3,59	52 37,60	52 47,03	+ 1,19	— 8,24	1,329
397	4	λ Canis Maj....	6 15	5	123 21 19,16	1,70	21 22,50	21 24,63	— 3,34	— 5,47	1,389
398	5	ν Geminorum...	6 19	5	69 41 22,55	2,22	41 19,79	41 17,02	+ 2,76	+ 5,53	1,648
399	1	α Argus.....	6 20	59	142 36 20,43	6,80		36 29,26		— 8,83	1,762
400	5	D Canis Maj....	6 22	6	122 28 42,93	2,85		28 45,26		— 2,33	1,910
401	5	f Monocerotis..	6 24	5	82 33 2,01	3,18		33 4,41		— 2,40	2,070
402	3	δ UrsæMinor.SP.	6 27	31	3 24 50,99	6,53	24 50,90	24 51,94	+ 0,09	— 0,95	2,356
403	3	γ Geminorum...	6 28	9	73 27 48,47	4,94	27 51,26	27 48,92	— 2,79	— 0,45	2,432
404	5	ξ 2 Canis Maj...	6 28	5	112 50 8,64	4,70		50 5,40		+ 3,24	2,436
405	5	ν 2 Canis Maj...	6 29	5	109 7 1,69	2,89		7 1,16		+ 0,53	2,553
406	5	55 Aurigæ.....	6 31	5	45 19 24,69	3,61		19 21,26		+ 3,02	2,677
407	6	h Monocerotis..	6 32	5	79 57 24,45	2,44		57 19,50		+ 4,95	2,756
408	3	ν Argus.....	6 33	5	133 3 5,18	5,57		3 7,80		— 2,62	2,838
409	5	42 Camelopard..	6 33	5	22 15 23,45	4,26		15 23,67		— 0,22	2,891
410	3	ε Geminorum...	6 33	16	64 42 37,38	3,25	42 36,14	42 33,66	+ 1,24	+ 3,72	2,916
411	5	* Camelopard...	6 35	5	12 49 36,40	3,48		49 37,64		— 1,24	3,061

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			h. m.		° ′ ″	s.	m. s.	m. s.	s.	s.	s.
412	5	q Camelopard...	6 35	5	20 55 48,40	2,99		55 46,58		+ 1,82	+ 3,080
413	4	ξ² Geminorum..	6 36	5	76 55 45,90	2,98	55 46,14	55 42,12	— 0,24	+ 3,78	3,113
414	1	α Canis Maj....	6 37	52	106 29 25,98	5,62	29 26,68	29 23,16	— 0,70	+ 2,82	4,418
415	5	i Monocerotis...	6 38	5	81 47 15,10	4,92		47 14,54		+ 0,56	3,316
416	5	k Monocerotis...	6 39	5	87 24 33,85	0,81		24 27,94		+ 5,91	3,394
417	5	x Arg. in Pup...	6 42	5	127 44 50,35	2,79		44 52,68		— 2,33	3,613
418	5	θ Geminorum...	6 42	5	55 50 38,70	2,89		50 39,81		— 1,11	3,615
419	5	e Lyncis.....	6 43	5	31 22 5,60	2,76		22 7,81		— 2,21	3,697
420	4	κ² Canis Maj...	6 43	5	122 19 5,57	4,03	19 5,40	19 4,42	+ 0,17	+ 1,15	3,731
421	5	* Canis Maj....	6 45	5	124 10 20,34	1,38		10 23,99		— 3,65	3,883
422	5,6	e¹ Geminorum..	6 45	5	76 36 51,90	3,58		36 51,22		+ 0,68	3,914
423	4	τ Argus.....	6 46	5	140 25 0,47	1,49		24 55,73		+ 4,74	3,971
424	5,6	π¹ Canis Maj...	6 46	5	110 1 19,21	0,19		1 16,10		+ 3,11	4,013
425	5	θ Canis Maj....	6 46	5	111 49 33,77	4,77		49 59,70		— 25,93	4,021
426	4	α Equulei Pict..	6 46	5	151 45 40,34	2,88		45 43,21		— 2,87	4,034
427	4	o¹ Canis Maj...	6 47	5	113 58 39,34	2,97	58 42,43	58 39,42	— 3,09	— 0,08	4,088
428	4,5	ι Canis Maj....	6 49	6	106 50 27,17	3,95	50 28,30	50 23,89	— 1,13	+ 3,28	4,214
429	2,3	ε Canis Maj....	6 52	35	118 44 45,98	4,72	44 49,87	44 47,29	— 3,89	— 1,31	4,504
430	4	ζ Geminorum...	6 54	5	69 11 21,36	4,29	11 22,69	11 23,92	— 1,33	— 2,56	4,681
431	4,5	* Camelopard...	6 55	5	7 17 28,33	3,80	17 27,50	17 26,75	+ 0,83	— 1,58	4,747
432	3,4	σ Canis Maj....	6 55	6	117 41 51,42	3,62	41 52,00	41 54,90	— 0,58	— 3,48	4,759
433	4	o² Canis Maj...	6 56	5	113 35 26,62	3,07	35 33,04	35 31,28	— 6,42	— 4,66	4,842
434	4	γ Canis Maj....	6 56	5	105 23 24,75	2,84	23 23,73	23 18,92	+ 1,02	+ 5,83	4,854
435	5	63 Aurigæ.....	7 0	5	50 24 49,84	1,63		24 43,24		+ 6,60	5,184
436	5	τ Geminorum...	7 0	4	59 29 13,97	2,80		29 7,12		+ 6,85	5,213
437	6	47 Geminorum..	7 1	4	62 52 22,51	0,55		52 25,26		— 2,75	5,257
438	3,4	δ Canis Maj....	7 1	5	116 7 48,15	3,21	7 48,92	7 47,28	— 0,77	+ 0,87	5,312
439	5,6	20 Monocerotis..	7 2	5	93 58 44,72	3,31		58 42,10		+ 2,62	5,338
440	6	m Geminorum...	7 2	5	65 35 47,91	1,81		35 46,88		+ 1,03	5,364
441	4,5	m Monocerotis..	7 3	5	90 13 13,87	1,99	13 11,05	13 9,63	— 2,82	+ 4,24	5,456
442	5	51 Geminorum..	7 4	5	73 33 38,96	1,80	33 40,56	33 39,30	— 1,60	— 0,34	5,491
443	6	26 Canis Maj...	7 5	3	115 39 55,62	1,88		39 47,42		+ 8,20	5,630
444	5	64 Aurigæ.....	7 6	5	48 49 28,30	2,15		49 32,71		— 4,41	5,709
445	4,5	e¹ Canis Maj...	7 7	5	116 3 58,36	4,44	3 59,53	3 55,87	— 1,17	+ 2,49	5,803
446	5	l Arg. in Pup..	7 8	5	136 28 49,59	2,88		28 52,76		— 3,17	5,836
447	6	ω Canis Maj....	7 8	5	116 29 3,29	1,95		29 1,23		+ 2,06	5,852
448	5	L¹ Arg. in Pup..	7 8	5	134 53 38,52	3,16		53 27,88		+ 10,64	5,871
449	4,5	λ Geminorum...	7 8	5	73 9 38,80	4,43	9 43,66	9 41,58	— 4,86	— 2,78	5,887
450	3,4	δ Geminorum...	7 10	5	67 42 48,84	3,49	42 51,28	42 50,29	— 2,44	— 1,45	6,024
451	5	γ Piscis Vol....	7 10	3	160 13 32,48	4,33		13 25,28		+ 7,20	6,040
452	5	65 Aurigæ.....	7 11	5	52 55 47,12	2,97		55 44,32		+ 2,80	6,082
453	3,4	π Argus.....	7 11	5	126 47 56,36	1,82		47 55,14		+ 1,22	6,121
454	6	29 Canis Maj...	7 12	5	114 15 19,21	2,45		15 19,71		— 0,50	6,159
455	6	d Canis Maj....	7 12	5	114 39 6,62	1,26		39 4,34		+ 2,28	6,165
456	4	ι Geminorum...	7 15	4	61 52 28,47	2,26	52 26,41	52 22,20	+ 2,06	+ 6,27	6,456
457	5	ô Piscis Vol....	7 17	4	157 38 50,29	3,28		38 45,20		+ 5,09	6,598

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			h. m.		° ′ ″	*s.*	*m. s.*	*m. s.*	*s.*	*s.*	*s.*
458	3	η Canis Maj....	7 17	13	118 58 40,12	3,26	58 42,78	58 42,21	— 2,66	— 2,09	+ 6,638
459	3	β Canis Min....	7 18	8	81 22 37,57	2,12	22 37,54	22 33,34	+ 0,03	+ 4,23	6,684
460	5	ρ Geminorum...	7 18	5	57 53 14,65	1,92		53 13,88		+ 0,77	6,703
461	5,6	b^1 Geminorum..	7 19	7	61 32 28,67	3,46		32 28,87		— 0,20	6,751
462	3	α Geminorum...	7 24	33	57 44 56,75	6,71	44 57,06	44 56,29	— 0,31	+ 0,46	7,161
463	4	σ Argus..... ...	7 24	5	132 57 46,33	2,52		57 51,59		— 5,26	7,169
464	5	k Geminorum...	7 24	5	73 48 58,81	2,12		48 55,58		+ 3,23	7,174
465	5,6	δ^2 Canis Min...	7 24	6	86 21 22,07	3,36		21 20,23		+ 1,84	7,205
466	6	δ^3 Canis Min...	7 25	6	86 16 6,18	2,73		16 3,01		+ 3,17	7,291
467	5	v Geminorum...	7 25	5	62 44 8,73	3,11	44 10,22	44 6,06	— 1,49	+ 2,67	7,300
468	1,2	α Canis Min....	7 30	60	84 20 55,10	5,40	20 54,24	20 48,79	+ 0,86	+ 6,31	8,682
469	4,5	n Monocerotis...	7 33	4	99 9 43,90	2,23	9 46,90	9 43,18	— 3,00	+ 0,72	7,921
470	4	κ Geminorum...	7 34	5	65 12 17,06	1,40	12 14,51	12 14,69	+ 2,52	+ 2,37	8,005
471	2	β Geminorum...	7 35	33	61 34 21,66	4,24	34 22,20	34 22,79	— 0,54	— 1,13	8,064
472	5	3 Argus.....	7 37	5	118 33 16,63	3,82		33 18,72		— 2,09	8,230
473	4	c Arg. in Pup..	7 39	5	127 33 43,95	3,33		33 46,37		— 2,42	8,407
474	5,6	o Arg. in Pup...	7 41	9	115 31 23,65	4,25		31 19,21		+ 4,44	8,551
475	5,6	6 Argus..... ...	7 42	5	106 48 11,44	4,05		48 9,17		+ 2,27	8,630
476	4	ξ Argus.....	7 42	5	114 26 28,38	1,17	26 27,23	26 24,83	+ 1,15	+ 3,55	8,640
477	5	ϕ Geminorum...	7 43	5	62 48 19,44	3,42	48 15,22	48 16,20	+ 4,22	+ 3,24	8,713
478	5	9 Argus.....	7 44	5	103 27 15,83	4,13		27 19,66		— 3,83	8,778
479	4,5	P Arg. in Pup...	7 44	5	135 57 4,04	4,23		57 3,46		+ 0,58	8,791
480	6	* Canis Min....	7 46	6	80 41 43,88	1,50		41 39,42		+ 4,46	8,965
481	5	b Arg. in Pup...	7 47	5	128 25 44,33	4,09		25 43,52		+ 0,81	8,992
482	6	1 Cancri.....	7 47	7	73 45 51,58	4,58		45 49,63		+ 1,95	9,047
483	5	R Arg. in Pup..	7 48	5	137 39 52,13	1,51		39 58,78		— 6,65	9,123
484	6	3 Cancri.....	7 51	4	72 14 5,65	2,78	14 4,34	14 3,79	+ 1,31	+ 1,86	9,335
485	3	χ Argus.....	7 52	15	142 31 54,43	5,83		32 0,08		— 5,65	9,445
486	5	13 Argus..... ..	7 53	5	87 12 26,91	3,37		12 21,96		+ 4,95	9,519
487	5	k Lyncis.....	7 56	5	38 0 52,77	1,27		1 0,69		— 7,92	9,689
488	5	55 Camelopard..	7 56	5	21 2 24,64	3,70		3			9,699
489	3	ζ Argus..... ..	7 58	12	129 31 54,58	1,97		31 50,65		+ 3,93	9,840
490	5,6	29 Monocerotis..	8 0	3	92 29 49,05	1,77		29 49,23		— 0,18	10,025
491	3,4	15 Argus..... ..	8 0	5	113 49 16,22	1,97	49 20,34	49 14,72	— 4,12	+ 1,50	10,044
492	5,6	16 Argus.....	8 1	5	108 45 15,91	2,52		45 20,29		— 4,38	10,128
493	5	γ^1 Argus.....	8 4	5	136 51 0,47	3,97		51 2,32		— 1,85	10,342
494	2	γ^2 Argus.....	8 4	9	136 50 20,32	3,28		50 33,32		— 13,00	10,345
495	5	20 Argus..... ..	8 6	5	105 17 7,29	2,02		16 58,29		+ 9,00	10,436
496	5	* Argus.....	8 6	5	132 29 12,11	1,73		29 11,80		+ 0,31	10,449
497	5	r Arg. in Pup..	8 7	5	125 23 40,38	1,22		23 33,88		+ 6,50	10,552
498	4	β Cancri.....	8 7	8	80 18 2,84	4,27	17 58,75	17 56,50	+ 4,09	+ 6,34	10,568
499	5	m Lyncis.....	8 11	5	46 16 38,54	2,27		16 37,14		+ 1,40	10,854
500	4,5	q Arg. in Pup...	8 12	5	126 8 24,46	4,87		8 23,14		+ 1,32	10,931
501	6	d^1 Cancri.....	8 14	5	71 7 53,61	4,94		7 53,42		+ 0,19	11,035
502	4,5	o Ursæ Maj....	8 16	5	28 43 31,89	2,77	43 33,51	43 36,05	— 1,65	+ 4,16	11,212
503	2	ϵ Argus..... ..	8 19	20	148 58 3,32			58 11,36		— 8,04	11,426

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			h. m.		° ′ ″	s.	m. s.	m. s.	s.	s.	s.
504	5,6	θ Cancri.....	8 22	3	71 20 23,00	0,27	20 25,33	20 23,31	— 2,33	— 0,31	+ 11,630
505	5	η Piscis Vol....	8 24	5	162 51 30,21	5,24		51 20,25		+ 9,96	11,747
506	5	β Piscis Vol....	8 24	6	155 34 28,46	6,78		34 16,38		+ 12,08	11,761
507	5	π^2 Ursæ Maj...	8 25	3	25 5 33,32	1,46		5 30,14		+ 3,18	11,869
508	4	δ Hydræ.....	8 29	5	83 42 43,50	2,15	42 44,92	42 40,20	— 1,42	+ 3,30	12,107
509	5	σ Hydræ.....	8 30	5	86 4 13,83	2,18		4 12,94		+ 0,89	12,192
510	5	e^1 Arg. in Vel..	8 33	5	132 24 4,96	5,85		24 4,26		+ 0,70	12,317
511	5	γ Cancri.....	8 33	6	67 55 42,71	4,68	55 45,68	55 42,78	— 2,97	— 0,07	12,438
512	5	β Pix Naut....	8 33	5	124 42 50,05	5,40		42 45,42		+ 4,63	12,439
513	5	η. Hydræ.....	8 34	5	86 0 1,01	2,13		59 59,86		+ 1,15	12,499
514	5	δ Arg. in Vel...	8 35	6	136 3 3,93	1,37		3 1,08		+ 2,85	12,544
515	4,5	δ Cancri.....	8 35	5	71 13 47,51	3,31	13 48,23	13 47,46	— 0,72	+ 0,05	12,546
516	4	o Argus.....	8 35	3	142 19 26,64	2,47		19 29,93		— 3,29	12,574
517	4,5	α Pix Naut....	8 37	5	122 34 52,16	2,62	34 52,13	34 53,62	+ 0,03	— 1,46	12,665
518	6	12 Hydræ.....	8 38	3	102 56 0,32	0,15		56 4,56		— 4,24	12,771
519	5	ρ Hydræ.....	8 39	6	83 32 34,25	1,90		32 34,08		+ 0,17	12,844
520	3	δ Argus.....	8 40	6	144 5 31,61	1,68		5 39,10		— 7,49	12,884
521	5	a Arg. in Vel...	8 40	4	135 25 38,61	5,22		25 35,74		+ 2,87	12,901
522	6	γ Pix Naut....	8 43	5	117 5 14,66	2,00		5 13,69		+ 0,97	13,104
523	4	ζ Hydræ.....	8 46	5	83 24 56,80	2,89	24 59,31	24 56,51	— 2,51	+ 0,29	13,307
524	3,4	ι Ursæ Maj....	8 47	6	41 18 4,85	2,58	18 3,01	18 4,12	+ 1,84	+ 0,73	13,380
525	6	o^2 Cancri.....	8 48	5	73 46 28,66	1,18		46 33,56		— 4,90	13,416
526	6	δ Pix Naut....	8 48	5	117 2 7,22	2,81		2 3,98		+ 3,24	13,426
527	5	a^2 Cancri.....	8 49	5	77 29 34,68	5,00	29 35,84	29 36,21	— 1,16	— 1,53	13,487
528	7	* Cancri.....	8 50	4	71 12 44,18	2,97		12 41,26		+ 2,92	13,512
529	4,5	κ Ursæ Maj....	8 52	5	42 10 56,18	2,01	10 54,62	10 57,81	+ 1,56	— 1,63	13,668
530	6	ν Cancri.....	8 53	5	64 53 20,14	4,42		53 13,08		+ 7,06	13,719
531	5	b^1 Arg. in Car..	8 53	5	148 34 44,12	4,30		34 45,97		— 1,85	13,721
532	5	b^2 Arg. in Car..	8 55	4	148 26 18,17	5,06		26 24,03		— 5,86	13,875
533	5	* Lyncis.....	8 56	5	50 52 42,86	2,39		52 39,00		+ 3,86	13,903
534	6	ω Hydræ.....	8 57	5	84 14 14,75	3,04		14 14,59		+ 0,16	13,987
535	5	c Arg. in Vel...	8 58	5	136 25 41,79	1,65		25 46,37		— 4,58	14,067
536	5,6	ξ Cancri.....	8 59	5	67 16 32,46	6,04	16 34,37	16 30,54	— 1,91	+ 1,92	14,146
537	5	a Piscis Vol....	9 0	5	155 43 25,40	3,14		43 24,06		+ 1,34	14,156
538	3,4	λ Argus.....	9 2	5	132 45 13,08	1,79		45 9,70		+ 3,38	14,280
539	6	e Pix Naut....	9 3	5	119 40 49,17	5,96		40 45,43		+ 3,74	14,341
540	5	e Ursæ Maj....	9 4	5	35 17 16,85	5,39		17 12,76		+ 4,09	14,412
541	5	G Arg. in Car...	9 5	5	161 55 35,88	2,30		55 27,16		+ 8,72	14,456
542	4,5	θ Hydræ.....	9 6	5	86 58 39,50	1,74	58 38,00	58 37,73	+ 1,50	+ 1,77	14,509
543	5	a Arg. in Car...	9 6	5	148 16 36,59	2,44		16 51,93		— 15,34	14,568
544	5	i Arg. in Car...	9 7	4	151 37 28,49	4,32		37 38,28		— 9,79	14,623
545	4	p Lyncis.....	9 8	5	52 29 15,74	1,69	29 15,57	29 9,33	+ 0,17	+ 6,41	14,672
546	6	K^2 Hydræ.....	9 8	3	95 39 9,74	2,03		39 6,77		+ 2,97	14,673
547	5	l Arg. in Vel...	9 9	4	127 52 8,42	2,75		52 14,07		— 5,65	14,713
548	4,5	r Lyncis.....	9 11	5	54 53 58,93	1,46	53 53,51	53 50,20	+ 5,42	+ 8,73	14,817
549	2	β Argus.....	9 11	5	159 1 18,55	6,53		1 30,95		— 12,40	14,855

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			h. m.		° ′ ″	s.	m. s.	m. s.	s.	s.	s.
550	5	θ Pix Naut	9 14	5	115 15 3,88	2,96		15 4,16		— 0,28	+ 15,009
551	3	κ Argus.....	9 17	5	144 17 30,52	3,73		17 36,19		— 5,67	15,175
552	4	h Ursæ Maj....	9 18	7	26 12 22,48	4,69	12 22,32	12 17,69	+ 0,16	+ 4,79	15,242
553	2	α Hydræ.....	9 19	10	97 55 46,45	5,28	55 47,96	55 46,09	— 1,51	+ 0,36	15,310
554	5	d Ursæ Maj....	9 19	5	19 26 5,93	4,36		26 3,88		+ 2,05	15,314
555	3	θ Ursæ Maj....	9 21	3	37 33 25,94	3,32	33 28,37	33 30,27	— 2,43	— 4,33	16,034
556	4,5	λ Leonis.....	9 22	2	66 17 29,26	0,92	17 29,26	17 25,09	0,00	+ 4,17	15,466
557	5	b Leonis Min...	9 24	5	52 51 28,35	2,03	51 25,98	51 19,91	— 2,63	+ 3,44	15,564
558	4,5	ψ Argus.....	9 24	5	129 43 53,40	1,78		43 51,94		+ 1,46	15,577
559	5	N Arg. in Vel...	9 26	9	146 17 29,74	6,11		17 32,77		— 3,03	15,687
560	5	h Arg. in Car...	9 30	5	148 28 40,76	1,76		28 47,09		— 6,33	15,875
561	5,6	b Sextantis.....	9 30	5	84 35 32,54	2,47		35 28,18		+ 4,36	15,878
562	5	ι Hydræ.....	9 31	5	90 22 51,15	4,84		22 45,39		+ 5,76	15,963
563	6	13 Leonis.....	9 32	3	63 19 15,99	1,86		19 21,97		— 5,98	15,998
564	4	o Leonis.....	9 32	7	79 20 36,07	4,20	20 34,14	20 32,10	+ 1,93	+ 3,97	16,010
565	5	κ Hydræ.....	9 32	5	103 34 6,50	3,17		34 9,75		— 3,25	16,015
566	6	ψ Leonis.....	9 34	5	75 12 35,90	4,42		12 33,62		+ 2,28	16,135
567	3	ε Leonis.....	9 36	9	65 27 8,06	1,99	27 6,24	27 3,24	+ 1,82	+ 4,82	16,224
568	6	θ Antle Pneum..	9 37	5	116 59 55,56	4,13		59 54,67		+ 0,89	16,247
569	4,5	υ Ursæ Maj....	9 39	5	30 10 23,72	2,26	10 17,66	10 21,06	+ 6,06	+ 2,66	16,359
570	5	φ Ursæ Maj....	9 40	7	35 9 7,71	2,43		9 5,55		+ 2,16	16,443
571	5	l Arg. in Car...	9 41	5	151 43 48,87	2,74		43 52,09		— 3,22	16,446
572	6	g Leonis.....	9 42	3	64 48 33,82	2,17		48 31,32		+ 2,50	16,528
573	3,4	υ Argus.....	9 43	6	154 17 24,60	3,87		17 21,86		+ 2,74	16,560
574	3	μ Leonis.....	9 43	5	63 12 2,65	0,60	12 4,92	12 2,66	— 2,27	— 0,01	16,570
575	5	υ¹ Hydræ.....	9 43	5	104 3 23,56	5,16		3 21,27		+ 2,29	16,582
576	5,6	ν Leonis.....	9 49	3	76 45 9,86	2,19	45 9,85	45 4,69	+ 0,01	+ 5,17	16,860
577	6	11 Sextantis....	9 49	5	80 53 0,10	2,31		52 57,22		+ 2,88	16,862
578	4	φ Argus.....	9 51	5	143 45 55,79	3,35		45 59,59		— 3,80	16,946
579	4,5	π Leonis.....	9 51	5	81 8 55,80	2,45	8 54,49	8 52,65	+ 1,31	+ 3,15	16,961
580	5	d Leonis Min...	9 57	3	53 56 7,26	1,22		56 4,87		+ 2,39	17,241
581	5	A Leonis.....	9 59	4	79 10 37,84	1,67	10 38,37	10 35,84	— 0,53	+ 2,00	17,308
582	1	α Leonis.....	9 59	10	77 12 38,58	2,28	12 35,16	12 32,50	+ 3,42	+ 6,08	17,327
583	6	16 Sextantis....	10 0	5	83 0 11,44	4,75		0 9,64		+ 1,80	17,372
584	4,5	λ² Hydræ.....	10 2	5	101 31 18,24	5,84	31 19,50	31 16,36	— 1,26	+ 1,88	17,457
585	6	21 Sextantis....	10 6	3	97 9 29,47	4,65		9 21,36		+ 8,11	17,600
586	3,4	λ Ursæ Maj....	10 6	6	46 14 43,81	4,90	14 43,30	14 43,72	+ 0,51	+ 0,09	17,647
587	4,5	ζ Leonis.....	10 7	6	65 44 38,30	2,11	44 41,06	44 32,20	— 2,76	+ 6,10	17,664
588	4	q Arg. in Vel...	10 8	5	131 17 15,08	1,87		17 7,37		+ 7,71	17,661
589	4,5	ω Argus.....	10 10	2	159 12 2,94	3,37		12 10,32		— 7,38	17,765
590	2	γ Leonis.....	10 11	6	69 18 24,49	2,30	18 24,00	18 22,42	+ 0,49	+ 2,07	17,802
591	5	q Arg. in Car...	10 11	4	150 29 24,15	3,87		29 29,81		— 5,66	17,834
592	3	μ Ursæ Maj....	10 12	5	47 39 13,35	3,60	39 15,12	39 11,08	— 1,77	+ 2,27	17,865
593	5	T Arg. in Vel...	10 15	5	145 11 43,82	5,81		11 40,66		+ 3,16	17,959
594	4,5	r Arg. in Vel...	10 15	5	130 48 8,45	5,08		48 4,71		+ 3,74	17,978
595	4,5	f Leonis Min...	10 16	4	55 20 46,10	5,38	20 46,01	20 45,27	+ 0,09	+ 0,83	18,019

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			h. m.		° ′ ″	*s.*	*m. s.*	*m. s.*	*s.*	*s.*	*s.*
596	4	μ Hydræ.....	10 18	5	105 58 34,95	1,92	58 34,24	58 32,28	+ 0,71	+ 2,67	+ 18,085
597	4,5	g Leonis Min...	10 18	5	52 25 47,77	3,15	25 46,67	25 45,54	+ 1,10	+ 2,23	18,090
598	4,5	a Antl. Pneum..	10 19	5	120 12 38,52	4,04	12 33,57	12 33,88	+ 4,95	+ 4,64	18,142
599	5	36 Ursæ Maj...	10 20	5	33 9 19,58	3,97	9 23,43	9 19,50	— 3,85	+ 0,08	18,154
600	5	1 Arg. in Car...	10 21	4	163 10 43,21	4,06					18,201
601	4	ρ Leonis.....	10 24	5	79 49 40,01	4,52	49 34,01	49 31,94	+ 6,00	+ 8,07	18,305
602	5	m Ursæ Maj....	10 24	5	32 3 2,15	3,78	3 1,72	2 59,76	+ 0,43	+ 2,39	18,315
603	4	p Arg. in Car...	10 26	6	150 49 4,16	4,41		49 6,60		— 2,44	18,381
604	6	1 Hyd. & Crat..	10 28	3	105 28 18,62	0,43		28 12,52		+ 6,10	18,449
605	4	l Leonis Min...	10 29	5	57 8 56,13	2,52	8 54,55	8 52,06	+ 1,58	+ 4,07	18,488
606	5	p Arg. in Vel...	10 30	4	137 20 58,22	4,41		21 3,64		— 5,42	18,523
607	5	ϕ^3 Hyd. & Crat.	10 30	5	106 0 6,36	1,12		0 0,71		+ 5,65	18,527
608	5	* Ursæ Maj....	10 31	5	20 2 40,58	1,34		2 34,74		+ 5,84	18,543
609	6	m Sextantis.....	10 33	3	90 51 21,45	3,67		51 17,27		+ 4,18	18,608
610	5	θ^1 Argus.....	10 36	5	153 34 58,39	2,24		35 6,98		— 8,59	18,718
611	4,5	n Leonis Min...	10 36	6	58 25 43,96	4,13	25 47,76	25 44,79	— 3,80	— 0,83	18,723
612	2,3	θ^2 Argus.....	10 37	5	153 30 35,81	6,26		30 34,12		+ 1,69	18,739
613	2	η Argus.....	10 38	5	148 47 47,64	2,94		47 54,47		— 6,83	18,789
614	3	μ Argus.....	10 39	6	138 31 40,65	4,97		31 26,68		+ 13,97	18,818
615	4	ν Hyd. & Crat..	10 41	5	105 18 43,08	4,88	18 40,50	18 37,33	+ 2,58	+ 5,75	18,871
616	4,5	o Leonis Min...	10 44	5	54 52 40,83	4,54	52 34,13	52 32,08	+ 6,70	+ 8,75	18,944
617	5	ω Ursæ Maj....	10 44	3	45 54 44,91	3,80		54 43,64		+ 1,27	18,955
618	4,5	54 Leonis.....	10 46	6	64 21 4,50	2,00	21 3,56	20 58,90	+ 0,94	+ 5,60	19,018
619	5	u Arg. in Car...	10 47	5	147 57 23,68	3,61		57 29,14		— 5,46	19,025
620	5	* Antl. Pneum..	10 49	5	126 13 52,33	2,75		13 44,57		+ 7,76	19,084
621	4	a Hyd. & Crat..	10 51	5	107 24 0,70	4,76	24 2,17	23 59,84	— 1,47	+ 0,86	19,154
622	5	d Leonis.....	10 52	5	85 28 40,03	4,08	28 36,98	28 31,55	+ 3,05	+ 8,48	19,161
623	5,6	s Leonis.....	10 53	4	91 34 31,69	1,91		34 32,30		— 0,61	19,196
624	1,2	a Ursæ Maj....	10 53	5	27 20 20,21	1,95	20 18,04	20 19,26	+ 2,17	+ 0,95	19,196
625	5	b Leonis.....	10 53	5	68 54 52,02	1,78		54 51,18		+ 0,84	19,198
626	4,5	χ Leonis.....	10 56	5	81 45 7,47	3,45	45 7,19	45 4,16	+ 0,28	+ 3,31	19,272
627	5	χ^1 Hyd. & Crat.	10 57	4	116 22 58,72	4,78		22 56,86		+ 1,86	19,294
628	5,6	p^2 Leonis.....	10 58	5	87 7 43,81	5,35		7 38,36		+ 5,45	19,319
629	3,4	ψ Ursæ Maj....	11 0	5	44 35 12,93	0,96	35 10,34	35 9,45	+ 2,59	+ 3,48	19,361
630	5	10 Hyd. & Crat.	11 0	5	117 9 57,55	5,64		9 54,92		+ 2,63	19,371
631	7	* Leonis.....	11 3	5	74 41 0,42	5,08		40 55,10		+ 5,32	19,422
632	4	β Hyd. & Crat..	11 3	5	111 54 15,34	5,39	54 15,94	54 13,58	— 0,60	+ 1,76	19,433
633	3	δ Leonis.....	11 5	5	68 33 3,17	1,65	33 5,38	33 2,41	— 2,21	+ 0,76	19,469
634	3	θ Leonis.....	11 5	5	73 38 48,30	2,22	38 52,54	38 48,67	— 4,24	— 0,37	19,475
635	5	ϕ Leonis.....	11 5	5	92 43 45,40	2,44		43 37,75		+ 7,65	19,529
636	4	ξ Ursæ Maj....	11 9	4	57 31 13,81	4,05	31 16,34	31 17,42	— 2,53	— 3,61	20,190
637	4	σ Leonis.....	11 12	5	83 2 41,40	2,53	2 45,11	2 44,05	— 3,71	— 2,65	19,611
638	4	π Centauri.....	11 13	5	143 33 56,29	4,19		34 4,35		— 8,06	19,627
639	4	ι Leonis.....	11 15	4	78 32 24,58	1,50	32 27,27	32 22,57	— 2,69	+ 2,01	19,658
640	5	c Hyd. & Crat..	11 16	5	99 56 4,48	4,40		55 53,73		+ 10,75	19,675
641	4	γ Hyd. & Crat..	11 16	7	106 45 22,40	2,19	45 24,12	45 19,86	— 1,72	+ 2,54	19,681

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			h. m.		° ′ ″	*s.*	*m. s.*	*m. s.*	*s.*	*s.*	*s.*
642	4	τ Leonis.....	11 19	6	86 12 50,07	1,59	12 50,49	12 46,28	— 0,42	+ 3,79	+ 19,726
643	6	86 Leonis	11 22	4	70 39 37,71	3,44		39 33,00		+ 4,71	19,762
644	4,5	*e* Leonis.....	11 22	5	92 4 20,29	2,82		4 17,00		+ 3,29	19,762
645	7	* Hyd. & Crat..	11 23	5	95 32 3,65	4,86		32 0,41		+ 3,24	19,786
646	7	* Hyd. & Crat..	11 24	5	96 53 41,99	2,94		53 39,47		+ 2,52	19,798
647	4	ξ Hyd. & Crat..	11 25	5	120 55 24,18	3,89	55 21,84	55 23,80	+ 2,34	+ 0,38	19,805
648	4	λ Centauri.....	11 28	5	152 5 9,57	2,43		5 9,89		— 0,32	19,847
649	4	θ Hyd. & Crat..	11 28	6	98 52 1,66	2,88	52 5,89	51 59,94	— 4,23	+ 1,72	19,848
650	4,5	υ Leonis.....	11 28	6	89 53 31,00	3,68	53 29,43	53 26,76	+ 1,57	+ 4,24	19,850
651	6,7	ω Virginis.....	11 30	4	30 55 51,65	0,66		55 50,73		+ 0,92	19,868
652	7	* Virginis.....	11 30	3	91 30 4,25	2,43		30 2,68		+ 1,57	19,868
653	5,6	92 Leonis.....	11 32	5	67 42 27,08	3,99		42 27,43		+ 0,35	19,892
654	4	ζ Hyd. & Crat..	11 36	5	107 24 41,02	4,19	24 41,97	24 39,58	— 0,95	+ 1,44	19,934
655	5	ξ¹ Virginis.....	11 36	5	80 48 12,83	2,53	48 10,06	48 2,36	+ 2,77	+ 10,47	19,937
656	4	χ Ursæ Major..	11 37	5	41 16 59,33	2,43	17 1,81	17 0,98	— 2,48	— 1,65	19,942
657	4,5	ν Virginis.....	11 37	5	82 31 22,67	5,15	31 25,01	31 24,93	— 2,34	— 1,26	19,943
658	4	E Leonis.....	11 39	5	68 50 28,49	2,36	50 32,09	50 29,36	— 3,60	— 0,87	19,960
659	2,3	β Leonis.....	11 40	7	74 28 59,54	4,32	29 0,38	28 55,67	— 0,84	+ 3,87	19,969
660	3,4	β Virginis.....	11 42	8	87 16 59,26	2,44	16 59,68	16 57,62	— 0,42	+ 1,64	19,980
661	6	B Virginis.	11 42	4	94 23 37,87	2,13		23 33,76		+ 4,11	19,983
662	4	β Hyd. & Crat..	11 44	6	122 58 0,90	4,86		58 4,96		— 4,06	19,996
663	2	γ Ursæ Major..	11 45	7	35 21 58,72	3,16	21 55,55	21 58,27	+ 3,17	+ 0,45	19,999
664	6	A Virginis.....	11 46	3	80 37 0,55	3,43		36 55,19		+ 5,36	20,007
665	6	29 Hyd. & Crat..	11 47	5	117 32 2,34	4,32		32 3,98		— 1,64	20,011
666	5,6	δ Virginis.....	11 51	5	85 24 14,40	2,57		24 10,54		+ 3,86	20,028
667	5	π Virginis.	11 52	9	82 26 35,05	3,85	26 30,30	26 33,76	+ 4,75	+ 1,29	20,031
668	4,5	o Virginis.....	11 57	12	80 19 44,17	5,42	19 40,44	19 40,51	+ 4,03	+ 3,96	20,040
669	7	* Virginis.	11 57	3	92 11 23,56	2,48		11 19,29		+ 4,27	20,041
670	4,5	η Crucis.....	11 58	5	153 40 10,22	3,02		40 17,28		— 7,06	20,042
671	3	δ Centauri.....	12 0	9	139 46 55,03	4,31		46 56,28		— 1,25	20,043
672	4,5	α Corvi.....	12 0	5	113 47 5,66	5,46	47 8,44	47 7,55	— 2,78	— 1,89	20,043
673	4	ρ Centauri.....	12 3	5	141 25 36,79	1,61		25 47,28		— 10,49	20,041
674	3	δ Crucis.....	12 6	6	147 48 26,81	1,65		48 35,27		— 8,46	20,035
675	3	δ Ursæ Major..	12 7	6	32 1 42,67	2,50	1 40,22	1 44,37	+ 2,45	— 1,70	20,033
676	3,4	η Virginis.....	12 11	7	89 43 39,24	4,64	43 36,93	43 33,67	+ 2,31	+ 5,57	20,019
677	5	*s* Comæ Ber....	12 12	4	71 16 21,09	1,71		16 19,38		+ 1,71	20,015
678	4	ε Crucis.....	12 12	5	149 28 1,06	3,04		28 4,13		— 3,07	20,014
679	5	*f* Comæ Ber...	12 16	5	62 57 44,41	2,28		57 47,27		— 2,86	19,995
680	1	α¹ Crucis.....	12 17	5	152 9 41,89	2,70		9 47,99		— 6,10	19,986
681	4,5	α Comæ Ber....	12 18	5	62 14 13,40	2,51	14 14,62	14 11,75	— 1,22	+ 1,65	19,978
682	5	σ Centauri.....	12 19	4	139 17 34,69	2,76		17 21,85		+ 12,84	19,975
683	3	δ Corvi.....	12 21	3	105 34 27,66	5,65	34 25,23	34 21,23	+ 2,43	+ 6,43	19,958
684	2,3	γ Crucis.....	12 22	5	146 9 56,18	2,60		9 44,71		+ 11,47	19,952
685	4,5	η Corvi.....	12 23	4	105 15 36,17	0,37	15 32,43	15 27,79	+ 3,74	+ 8,38	19,939
686	2,3	β Corvi.....	12 25	3	112 27 39,91	2,98	27 38,17	27 39,48	+ 1,74	+ 0,43	19,919
687	3,4	κ Draconis.....	12 26	6	19 16 45,22	2,47	16 44,51	16 46,72	+ 0,71	+ 1,50	19,912

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			h. m.		° ′ ″	s.	m. s.	m. s.	s.	s.	s.
688	4	α Muscæ.....	12 27	5	158 12 8,07	3,94		12 6,36		+ 1,71	+ 19,902
689	5	τ Centauri.....	12 28	5	137 36 32,43	4,81		36 29,23		+ 3,20	19,888
690	5	l Centauri.....	12 31	3	129 3 19,26	5,20		3 17,07		+ 2,19	19,863
691	3	γ Centauri.....	12 32	5	138 1 42,31	4,63		1 40,95		+ 1,36	19,845
692	4	β Muscæ.....	12 36	6	157 10 53,64	4,33		10 50,60		+ 3,04	19,796
693	6	33 Virginis.....	12 38	4	79 30 52,76	3,40		30 47,38		+ 5,38	19,771
694	2	β Crucis.....	12 38	6	148 45 42,30	3,69		45 42,39		— 0,09	19,770
695	5	n Centauri.....	12 44	4	129 15 29,02	3,79		15 23,33		+ 5,69	19,674
696	5	o Centauri.....	12 45	5	146 15 27,16	1,30		15 24,68		+ 2,48	19,663
697	3	ε Ursæ Major..	12 46	5	33 7 16,47	4,23	7 16,93	7 19,84	— 0,46	— 3,37	19,631
698	2,3	α Canum Ven..	12 48	9	50 46 3,20	3,99	46 2,84	46 1,60	+ 0,36	+ 1,60	19,604
699	4,5	r Comæ Ber...	12 50	6	71 40 38,19	5,23	40 39,54	40 31,00	— 1,35	+ 7,19	19,558
700	4	δ Muscæ.....	12 51	5	160 38 12,23	2,74		38 1,91		+ 10,32	19,554
701	5	37 Comæ Ber...	12 52	5	58 19 1,39	5,36		18 1,07		+ 0,32	19,526
702	3,4	ε Virginis.....	12 54	4	78 7 47,66	1,97	7 49,46	7 46,27	— 1,80	+ 1,39	19,495
703	5	ω Centauri.....	13 2	5	132 27 53,33	5,65		27 53,57		— 0,24	19,320
704	5	53 Virginis.....	13 3	3	105 17 8,31	3,01		17 0,32		+ 7,99	19,290
705	4,5	61 Virginis.....	13 9	5	107 22 5,47	4,59	22 7,18	22 5,20	— 1,71	+ 0,27	20,208
706	4,5	γ Hydræ Con...	13 10	6	112 16 37,14	3,51	16 37,86	16 33,15	— 0,72	+ 3,99	19,123
707	5	21 Canum Ven..	13 11	4	39 25 40,52	5,72		25 40,34		+ 0,18	19,089
708	1	α Virginis.....	13 16	21	100 16 39,27	5,05	16 35,06	16 32,07	+ 4,21	+ 7,20	18,944
709	3	ζ Ursæ Maj....	13 17	7	34 11 24,38	4,67	11 23,44	11 22,08	+ 0,94	+ 2,30	18,921
710	5	i Virginis.....	13 18	5	101 49 32,65	4,44	49 31,42	49 31,85	+ 1,23	+ 0,80	18,901
711	7	* Virginis.....	13 21	3	90 27 9,30	4,03					18,818
712	4	d Centauri.....	13 21	5	128 31 51,65	2,68		31 49,03		+ 2,62	18,797
713	6	73 Virginis.....	13 23	4	107 51 14,69	4,58		51 15,21		— 0,52	18,746
714	4	ζ Virginis.....	13 26	6	89 43 46,33	2,82	43 44,13	43 39,40	+ 2,20	+ 6,93	18,647
715	6	ε Centauri.....	13 29	4	118 41 34,49	3,78		41 35,74		— 1,25	18,544
716	3	ε Centauri.....	13 29	7	142 36 9,18	5,76		36 4,84		+ 4,34	18,544
717	6	1 Bootis.....	13 32	5	69 11 12,56	3,79		11 11,33		+ 1,23	18,431
718	5	i Centauri.....	13 36	5	122 11 7,75	5,69		11 8,37		— 0,62	18,307
719	5	τ Bootis.....	13 39	5	71 41 50,11	3,90		41 48,33		+ 1,78	18,195
720	4	μ Centauri.....	13 39	5	131 37 39,64	2,61		37 36,30		+ 3,34	18,186
721	5	g Centauri.....	13 40	3	123 36 11,08	4,23		36 13,44		— 2,36	18,179
722	2,3	η Ursæ Maj....	13 41	14	39 50 29,37	3,35	50 25,90	50 23,74	+ 3,47	+ 5,63	18,134
723	4	υ Bootis.....	13 41	5	73 21 36,45	3,32	21 37,67	21 33,10	— 1,22	+ 3,35	18,118
724	4,5	k Centauri.....	13 42	4	122 9 9,65	3,41	9 4,70	9 5,78	+ 4,95	+ 3,87	18,088
725	4,5	i Draconis.....	13 46	3	24 26 27,51	3,76		26 26,77		+ 0,74	17,919
726	5	η Bootis.....	13 47	5	70 45 8,45	2,99	45 5,84	45 4,02	+ 2,61	+ 4,43	17,914
727	3	φ Centauri.....	13 48	4	131 16 15,52	2,18		16 10,04		+ 5,48	17,859
728	5	υ^1 Centauri....	13 48	4	133 58 27,43	2,61		58 18,45		+ 8,98	17,849
729	5	υ^2 Centauri....	13 51	5	134 46 52,34	4,63		46 46,31		+ 6,03	17,731
730	1	β Centauri.....	13 52	7	149 33 9,09	3,39		33 2,96		+ 6,13	17,700
731	5	χ Centauri.....	13 56	5	130 21 57,14	6,09		21 49,00		+ 8,14	17,542
732	4,5	π Hydræ Con...	13 57	5	115 51 51,26	6,32		51 48,83		+ 2,43	17,499
733	2	θ Centauri.....	13 57	5	125 32 6,63	3,20		32 4,44		+ 2,19	17,499

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			h. m.		° ′ ″	*s.*	*m. s.*	*m. s.*	*s.*	*s.*	*s.*
734	3,4	α Draconis.....	13 59	5	24 48 57,92	2,85	48 52,00	48 51,55	+ 5,92	+ 6,37	+ 17,367
735	5	6 Hydræ Con...	14 3	4	116 27 41,95	1,19		27 36,50		+ 5,45	17,223
736	4	κ Virginis.....	14 4	4	99 29 1,03	5,40	28 58,51	29 3,52	+ 2,52	— 2,49	17,187
737	4	ι Virginis.....	14 7	5	95 11 29,40	4,36	11 23,62	11 20,17	+ 5,78	+ 9,23	17,038
738	1	α Bootis.....	14 8	14	69 56 5,63	4,49	56 2,62	55 59,77	+ 3,01	+ 5,86	18,962
739	4,5	ι Lupi.....	14 9	4	135 16 26,11	2,87		16 17,46		+ 8,65	16,971
740	4	λ Bootis.....	14 10	4	43 7 57,37	1,69	7 57,83	7 56,43	— 0,46	+ 0,94	16,908
741	5	τ^1 Lupi.....	14 15	5	134 27 5,80	1,72		26 59,33		+ 6,47	16,652
742	5	τ^2 Lupi.....	14 15	4	134 36 38,52	2,01		36 32,60		+ 5,92	16,651
743	4	θ Bootis.....	14 19	5	37 21 56,11	4,46	21 55,17	21 56,41	+ 0,94	— 0,30	16,988
744	5	σ Lupi.....	14 21	4	139 42 8,21	3,70		42 0,58		+ 7,63	16,356
745	4	ρ Bootis.....	14 25	5	58 52 58,56	5,26	52 58,37	52 59,30	+ 0,19	— 0,74	16,189
746	3,4	γ Bootis.....	14 25	4	50 56 56,70	1,52	56 56,66	56 53,79	+ 0,04	+ 2,91	16,151
747	5	σ Bootis.....	14 27	5	59 31 3,40	4,80		30 59,68		+ 3,72	16,045
748	1	α^2 Centauri....	14 28	3	150 7 53,43	2,37		7 47,11		+ 6,32	15,995
749	3,4	ζ Bootis.....	14 33	5	75 32 33,89	2,39	32 32,51	32 27,07	+ 1,38	+ 6,82	15,738
750	5	c^1 Centauri	14 33	5	124 26 27,37	2,35		26 15,44		+ 11,93	15,724
751	4,5	34 Bootis.....	14 36	4	62 44 59,33	4,11	44 58,81	44 56,73	+ 0,52	+ 2,60	15,579
752	5	6 Libræ.....	14 40	3	117 15 2,06	3,09		15 0,11		+ 1,95	15,335
753	5	o Lupi.....	14 41	4	132 52 10,26	5,29		52 5,11		+ 5,15	15,321
754	3	α^2 Libræ.....	14 41	8	105 20 5,11	5,09	20 2,93	19 59,00	+ 2,18	+ 6,11	15,270
755	3,4	β Lupi.....	14 47	7	132 26 46,79	4,20		26 42,48		+ 4,31	14,927
756	5	ξ^2 Libræ.....	14 47	5	100 43 21,96	3,23	43 21,08	43 16,93	+ 0,88	+ 5,03	14,921
757	3	κ Centauri.....	14 48	5	131 25 10,84	2,88		25 10,20		+ 0,64	14,886
758	5	π Lupi.....	14 54	5	136 22 59,20	1,37		22 53,30		+ 5,90	14,563
759	3,4	γ Libræ.....	14 54	5	114 36 44,43	4,46	36 41,48	36 37,31	+ 2,95	+ 7,12	14,530
760	3	β Bootis.....	14 55	5	48 56 19,00	3,93	56 20,63	56 19,45	— 1,63	— 0,45	14,446
761	5	c Bootis.....	14 59	5	64 28 6,01	2,71		28 5,44		+ 0,57	14,183
762	4	ζ Lupi.....	15 0	5	141 26 56,45	4,02		26 54,30		+ 2,15	14,164
763	5	κ Lupi.....	15 0	3	138 5 12,97	2,46		5 15,30		— 2,33	14,162
764	5	μ Lupi.....	15 7	3	137 14 45,24	4,05		14 34,43		+ 10,81	13,748
765	5	χ Bootis.....	15 7	4	60 12 18,31	0,51		12 5,62		+ 12,69	13,709
766	2,3	β Libræ.....	15 8	5	98 45 9,79	5,32	45 13,10	45 9,36	— 3,31	— 0,43	13,678
767	5	ϕ^2 Lupi.....	15 12	5	126 14 43,58	3,49		14 41,47		+ 2,11	13,390
768	4	μ Bootis.....	15 18	5	52 1 36,14	4,08	1 33,87	1 28,50	+ 2,27	+ 7,64	13,013
769	4	β Cor. Bor.....	15 21	5	60 18 27,24	4,54	18 25,48	18 22,59	+ 1,76	+ 4,65	12,828
770	3,4	γ^2 Ursæ Min...	15 21	5	17 33 51,65	2,11	33 52,40	33 50,59	— 0,75	+ 1,06	12,813
771	3	ι Draconis.....	15 21	5	30 26 24,91	3,26	26 22,78	26 23,08	+ 2,13	+ 1,83	12,806
772	4,5	γ Libræ.....	15 26	3	104 13 9,38	0,91	13 9,46	13 2 80	— 0,08	+ 6,58	12,475
773	2	α Cor. Bor.....	15 27	8	62 42 40,16	3,45	42 41,82	42 37,10	— 1,66	+ 3,06	12,375
774	4,5	40 Libræ.....	15 28	4	119 12 52,73	2,46	12 51,47	12 49,39	+ 1,26	+ 3,34	12,324
775	5	ι Serpentis.....	15 34	5	69 46 51,19	2,13		46 46,08		+ 5,11	11,924
776	4,5	η Libræ.....	15 35	4	105 7 43,18	1,65		7 35,03		+ 8,15	11,885
777	2,3	α Serpentis.....	15 36	7	83 2 11,49	4,34	2 12,21	2 10,76	— 0,72	+ 0,73	11,788
778	4,5	λ Serpentis.....	15 38	5	82 6 43,21	5,44	6 42,38	6 41,63	+ 0,83	+ 1,58	11,625
779	3,4	μ Serpentis.....	15 41	3	92 54 22,27	1,66		54 18,71		+ 3,56	11,442

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			h. m.		° ′ ″	*s.*	*m. s.*	*m. s.*	*s.*	*s.*	*s.*
780	4,5	δ Cor. Bor.....	15 42	5	63 24 31,16	4,13	24 32,72	24 27,95	— 1,56	+ 3,21	+ 11,319
781	3,4	π Scorpii.....	15 49	5	115 37 13,97	3,62	37 10,45	37 10,44	+ 3,52	+ 3,53	10,873
782	3	γ Serpentis.....	15 49	6	73 46 49,11	1,69	46 52,27	46 48,94	— 3,16	+ 0,17	12,182
783	3	δ Scorpii.....	15 50	6	112 8 2,04	5,84		7 53,11		+ 8,93	10,747
784	5	δ Normæ.....	15 54	4	134 42 23,00	2,78		42 16,82		+ 6,18	10,434
785	4,5	π Serpentis.....	15 55	5	66 43 14,45	2,27	43 16,57	43 11,34	— 2,12	+ 3,11	10,400
786	5	υ Herculis.....	15 57	4	43 29 23,01	3,55	29 27,13	29 24,82	— 4,12	— 1,81	10,211
787	3,4	θ Draconis.....	15 59	6	30 58 53,88	4,27	58 54,11	58 51,89	— 0,23	+ 1,99	10,118
788	5	δ Triang. Aus..	16 0	4	153 14 29,25	5,86		14 26,32		+ 2,93	10,016
789	3	δ Ophiuchi	16 5	6	93 15 5,87	3,62	15 8,57	15 3,91	— 2,70	+ 1,96	9,607
790	5	n Scorpii.....	16 6	5	97 54 53,06	3,26		54 50,64		+ 2,42	10,064
791	3	ε Ophiuchi	16 9	5	94 16 24,55	3,86	16 26,20	16 20,47	— 1,65	+ 4,08	9,306
792	4	σ Scorpii.....	16 11	5	115 10 48,82	2,54	10 45,15	10 39,89	+ 3,67	+ 8,93	9,187
793	5	σ Serpentis.....	16 13	4	88 34 0,65	1,04		33 59,88		+ 0,77	8,984
794	5	ξ Cor. Bor.....	16 15	5	58 42 36,18	2,85		42 36,33		— 0,15	8,827
795	5	υ Ophiuchi	16 19	5	97 59 6,87	3,60		59 8,93		— 2,06	8,580
796	1	α Scorpii.....	16 19	5	116 2 56,03	6,13	2 54,43	2 52,70	+ 1,60	+ 3,33	8,550
797	5	25 Herculis.....	16 19	4	52 13 0,36	1,63		12 55,34		+ 5,02	8,522
798	2,3	β Herculis.....	16 23	6	68 8 8,95	3,06	8 11,98	8 10,03	— 3,03	— 1,08	8,239
799	3,4	ζ Ophiuchi	16 28	6	100 13 7,87	5,86	13 3,74	12 58,81	+ 4,13	+ 9,06	7,847
800	4	σ Herculis.....	16 29	5	47 12 37,26	2,27	12 37,40	12 34,47	— 0,14	+ 2,79	7,781
801	5	m Scorpii.....	16 32	6	107 24 25,62	1,69		24 22,65		+ 2,97	7,528
802	3	ζ Herculis.....	16 35	4	58 5 8,74	1,17	5 11,86	5 4,69	— 3,12	+ 4,05	7,275
803	3	η Herculis.....	16 37	7	50 45 8,58	4,47	45 8,24	45 3,96	+ 0,34	— 4,62	7,096
804	3	ε Scorpii.....	16 39	5	123 58 38,79	0,60		58 39,37		— 0,58	6,923
805	5	r Ophiuchi	16 40	4	100 28 36,66	1,85		28 29,26		+ 7,40	6,819
806	5	K Herculis.....	16 42	5	82 27 14,51	4,16		27 9,92		+ 4,59	6,684
807	5	s Herculis.....	16 44	4	59 54 3,74	2,10		53 55,49		+ 8,25	6,525
808	3,4	ζ Aræ.....	16 45	5	145 42 44,82	3,54		42 38,60		+ 6,22	6,476
809	5	53 Herculis.....	16 47	5	58 0 48,09	1,19		0 49,49		— 1,40	6,317
810	4	κ Ophiuchi	16 50	7	80 21 25,41	2,29	21 25,22	21 15,07	+ 0,19	+ 10,34	6,058
811	5	k Scorpii.....	16 54	5	123 52 32,37	2,08		52 32,84		— 0,47	5,721
812	3	ε Herculis.....	16 54	5	58 49 8,67	3,33	49 10,77	49 7,22	— 2,10	+ 1,45	5,711
813	5	h Draconis.....	16 55	5	24 36 26,35	2,72		36 19,89		+ 6,46	5,601
814	5	60 Herculis.....	16 57	5	77 1 15,29	2,77		1 9,26		+ 6,03	5,399
815	4	η Scorpii.....	17 0	4	133 0 8,89	1,81		0 10,55		— 1,66	5,188
816	2,3	η Ophiuchi	17 0	5	105 30 29,41	6,81	30 26,95	30 21,14	+ 2,46	+ 8,27	5,134
817	4	μ Draconis.....	17 2	5	35 18 19,49	3,20	18 17,55	18 15,82	+ 1,94	+ 3,67	5,034
818	4,5	A Ophiuchi	17 5	5	116 20 46,21	2,82	20 43,60	20 40,94	+ 2,61	+ 5,27	6,021
819	3,4	α Herculis.....	17 7	9	76 24 40,53	2,85	24 38,40	24 33,09	+ 2,13	+ 7,44	4,603
820	5,6	o Ophiuchi 41..	17 8	5	90 14 49,81	3,51	14 52,32	14 48,85	— 2,51	+ 0,96	4,518
821	4	u Herculis.....	17 11	5	56 42 45,80	1,69	42 45,73	42 44,24	+ 0,07	+ 1,56	4,248
822	3	γ Aræ.....	17 11	4	146 12 23,60	1,75		12 22,98		+ 0,62	4,241
823	4,5	e Herculis.....	17 12	5	52 31 33,90	1,22	31 36,58	31 27,01	— 2,68	+ 6,89	4,184
824	4	δ Aræ.....	17 16	5	150 31 47,83	0,41		31 46,18		+ 1,65	3,841
825	5	d Ophiuchi	17 17	5	119 42 21,24	2,15		42 19,79		+ 1,45	3,781

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			h. m.		° ′ ″	s.	m. s.	m. s.	s.	s.	s.
826	4	ρ Herculis.....	17 18	6	52 41 37,16	2,42	41 37,88	41 30,36	— 0,72	+ 6,80	+ 3,668
827	4,5	σ Ophiuchi	17 18	5	85 42 23,66	3,82	42 21,77	42 15,50	+ 1,89	+ 8,16	3,645
828	5	e^2 Ophiuchi....	17 21	5	113 49 21,21	4,13	49 24,94	49 20,02	— 3,73	+ 1,19	3,389
829	3	λ Scorpii.....	17 22	5	126 58 14,02	2,97		58 6,78		+ 7,24	3,301
830	4,5	λ Herculis.....	17 24	5	63 45 20,06	2,34	45 22,93	45 21,86	— 2,87	— 1,80	3,147
831	5	θ Scorpii.....	17 25	4	132 52 45,29	3,85		52 42,20		+ 3,09	3,039
832	2	β Draconis.....	17 27	4	37 34 11,58	4,01	34 13,78	34 11,80	— 2,20	— 0,22	2,912
833	2	α Ophiuchi	17 27	8	77 18 36,62	2,68	18 36,65	18 31,51	— 0,03	+ 5,11	2,872
834	5	ξ Serpentis.....	17 28	5	105 17 7,39	1,99		16 58,06		+ 9,33	2,802
835	5	μ Ophiuchi	17 29	3	98 0 27,08	1,11	0 30,46	0 24,68	— 3,38	+ 2,40	2,737
836	3	κ Scorpii.....	17 31	5	128 55 57,23	1,85		55 55,82		+ 1,41	2,552
837	4,5	ο Serpentis....	17 32	4	102 46 33,38	1,23	46 37,94	46 32,11	— 4,56	+ 1,27	2,455
838	5	D Ophiuchi	17 33	3	111 35 31,91	0,34	35 32,42	35 25,14	— 0,51	+ 6,77	2,334
839	3	β Ophiuchi.....	17 35	7	85 21 21,98	3,90	21 19,46	21 13,90	+ 2,52	+ 8,08	2,176
840	4,5	ι^1 Scorpii.....	17 36	5	130 3 15,09	4,02		3 1,00		+ 14,09	2,121
841	4	γ Telescopii....	17 38	5	126 58 45,56	2,38		58 43,44		+ 2,12	1,896
842	4	γ Ophiuchi	17 39	4	87 13 21,50	1,26	13 20,32	13 15,44	+ 1,18	+ 6,06	1,802
843	4	μ Herculis.....	17 40	6	62 10 29,31	2,82	10 30,71	10 29,77	— 1,40	— 0,46	2,604
844	5	* Sagittarii.....	17 48	6	120 13 38,03	2,09		13 33,56		+ 4,47	1,723
845	5	b Sagittarii.....	17 49	6	113 47 27,58	3,05	47 31,14	47 25,06	— 3,56	+ 2,52	0,925
846	4	ν Ophiuchi	17 50	5	99 44 45,29	2,01	44 42,31	44 33,00	+ 2,98	+ 12,29	0,903
847	4	θ Herculis.....	17 50	5	52 43 18,51	3,48	43 20,58	43 16,33	— 2,07	+ 2,18	0,838
848	4	ξ Herculis.....	17 51	4	60 43 43,13	1,15	43 42,10	43 37,27	+ 1,03	+ 5,86	0,773
849	2	γ Draconis.....	17 53	18	38 29 14,21	4,34	29 17,80	29 17,92	— 3,59	— 3,71	0,642
850	4	θ Aræ.....	17 53	5	140 5 31,93	3,81		5 28,30		+ 3,63	0,576
851	5	τ Ophiuchi	17 54	5	98 10 17,17	5,99		10 18,05		— 0,88	0,540
852	5	Q Herculis.....	17 55	3	69 9 36,91	2,60		9 34,29		+ 2,62	0,428
853	4,5	p Ophiuchi....	17 57	5	87 27 11,49	2,41	27 13,21	27 13,76	— 1,72	— 2,27	1,444
854	5	* Sagittarii	17 57	5	118 27 56,16	4,49		27 58,56		— 2,40	0,235
855	4	S^2 Ophiuchi...	17 59	5	80 27 13,99	1,63	27 13,12	27 6,65	+ 0,87	+ 7,34	+ 0,062
856	4	ο Herculis.....	18 0	5	61 15 18,28	3,40	15 18,60	15 15,83	— 0,32	+ 2,45	— 0,080
857	3,4	μ^1 Sagittarii....	18 4	5	111 5 40,43	1,49	5 40,41	5 36,85	+ 0,02	+ 3,58	0,314
858	5	A Herculis.....	18 5	4	58 37 49,65	1,88		37 46,56		+ 3,09	0,481
859	4	β Telescopii....	18 6	5	126 48 8,74	3,38		48 0,74		+ 8,00	0,536
860	3,4	δ Sagittarii....	18 10	6	119 53 29,34	5,62	53 24,25	53 26,34	+ 5,09	+ 3,00	0,884
861	5	G Herculis.....	18 12	5	65 37 8,50	1,22		37 1,51		+ 6,99	1,064
862	4	η Serpentis	18 12	4	92 56 4,55	2,96	56 8,76	56 3,35	— 4,21	+ 1,20	0,414
863	3	ε Sagittarii....	18 13	5	124 27 19,32	1,44		27 6,30		+ 13,02	1,127
864	4,5	α Telescopii....	18 14	4	136 3 7,90	1,05		2 56,00		+ 11,90	1,255
865	4	λ Sagittarii	18 17	5	115 30 25,88	5,56	30 21,76	30 22,68	+ 4,12	+ 3,20	1,527
866	5	* Clypei Sob...	18 19	6	104 39 58,07	6,28		39 55,89		+ 2,18	1,707
867	5	b Draconis.....	18 21	6	31 17 42,73	0,47		17 41,53		+ 1,20	1,871
868	4,5	χ Draconis.....	18 24	5	17 20 32,67	2,64	20 32,20	20 31,04	+ 0,47	+ 1,63	2,104
869	3	δ Ursæ Min....	18 27	5	13 24 48,43	1,93	24 50,90	24 51,27	— 2,47	— 2,84	2,357
870	5	* Pavonis.....	18 29	5	155 1 0,58	3,74		1 22,25		— 21,67	2,508
871	1	α Lyræ.....	18 31	40	51 22 8,64	4,07	22 8,55	22 6,94	+ 0,09	+ 1,70	2,718

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			h. m.		° ′ ″	s.	m. s.	m. s.	s.	s.	s.
872	5	*o* Aquilæ.....	18 33	5	99 12 23,01	3,41		12 17,94		+ 5,07	— 2,873
873	4,5	*φ* Sagittarii.....	18 35	5	117 9 20,46	2,82	9 19,22	9 17,89	+ 1,24	+ 2,57	3,052
874	5	K Herculis.....	18 38	4	69 36 36,14	1,03		36 31,24		+ 4,90	3,337
875	5	*e* Lyræ.....	18 38	5	50 30 8,80	1,60		30 2,37		+ 6,43	3,368
876	5	*δ* Lyræ.....	18 39	6	50 33 37,65	3,52		33 32,05		+ 5,60	3,371
877	3	*β* Lyræ.....	18 44	7	56 49 42,48	6,04	49 42,84	49 39,64	— 0,36	+ 2,84	3,807
878	5	*ν*¹ Sagittarii....	18 44	5	112 56 37,49	1,75	56 38,38	56 36,77	— 0,89	+ 0,72	3,816
879	3	*σ* Sagittarii.....	18 45	5	116 29 50,29	1,83	29 51,58	29 50,97	— 1,29	— 0,68	3,886
880	5	O Herculis.....	18 48	5	67 33 44,33	1,86		33 44,22		+ 0,11	4,131
881	5	*δ*² Lyræ	18 49	5	53 18 38,91	1,84		18 38,78		+ 0,13	4,214
882	2,3	*ζ* Sagittarii	18 52	5	120 6 48,99	2,59	6 43,29	6 45,07	+ 5,70	+ 3,92	4,491
883	3,4	*e* Aquilæ.....	18 52	3	75 9 21,21	1,34	9 16,80	9 14,13	+ 4,41	+ 7,08	4,500
884	3	*γ* Lyræ.....	18 53	5	57 32 12,45	2,21	32 14,05	32 10,83	— 1,60	+ 1,62	4,558
885	5	*γ* Cor. Aust	18 55	5	127 17 48,43	4,81		17 34,82		+ 13,61	4,756
886	4	*τ* Sagittarii.. ..	18 56	3	117 54 29,30	1,43	54 29,86	54 28,71	— 0,56	+ 0,59	4,876
887	3	*λ* Aquilæ.....	18 57	5	95 7 47,72	2,58	7 43,16	7 37,34	+ 4,56	+ 10,38	4,952
888	3	*ζ* Aquilæ.....	18 58	10	76 22 51,97	3,97	22 53,02	22 43,57	— 1,05	+ 8,40	4,983
889	5	*α* Cor. Aust....	18 58	3	128 9 26,29	0,63		9 23,00		+ 3,29	5,009
890	4,5	*π* Sagittarii.....	19 00	5	111 17 1,03	2,79		16 59,13	— 2,19	+ 1,90	5,158
891	5	B Aquilæ.....	19 3	5	98 12 50,41	2,36		12 48,45		+ 1,96	5,478
892	5	*d* Sagittarii	19 8	5	109 14 43,72	1,83	14 44,23	14 41,94	— 0,51	+ 1,78	5,833
893	5	*η* Lyræ..... ...	19 8		51 8 24,30	5,83		8 22,76		+ 1,54	5,857
894	5	*n* Draconis.....	19 8	3	33 25 32,58	0,47		25 34,55		— 1,97	5,897
895	5	*ω*¹ Aquilæ.....	19 10	5	78 42 8,27	0,89		42 3,55		+ 4,72	6,013
896	4	*β*¹ Sagittarii....	19 10	5	134 46 2,35	1,84		45 54,82		+ 7,53	6,060
897	3	*δ* Draconis.....	19 12	12	22 38 4,44	2,87	38 8,38	38 9,16	— 3,94	— 4,72	6,234
898	4	*κ* Cygni..... ...	19 13	5	36 56 25,83	1,43	56 25,76	56 25,64	+ 0,07	+ 0,19	6,290
899	5	*b* Aquilæ.....	19 17	5	78 24 36,45	2,63		24 33,22		+ 3,23	6,316
900	3,4	*δ* Aquilæ.....	19 17	12	87 12 56,37	3,25	12 56,01	12 50,52	+ 0,36	+ 5,85	6,601
901	4,5	*τ* Draconis.....	19 19	5	16 57 38,72	2,07	57 39,10	57 35,71	— 0,38	+ 3,01	6,753
902	4	*π* Draconis.....	19 20	5	24 36 38,57	3,15	36 37,49	36 35,74	+ 1,08	+ 2,83	6,836
903	4	*b* Vulpeculæ.. .	19 22	5	65 40 19,52	1,63	40 18,96	40 15,67	+ 0,56	+ 3,85	6,988
904	3	*β*¹ Cygni.....	19 24	6	62 23 23,56	3,54	23 24,42	23 21,19	— 0,86	+ 2,37	7,171
905	5	*ι* Cygni..... ...	19 25	5	38 37 36,36	4,46	37 37,48	37 36,30	— 1,12	+ 0,06	7,298
906	4,5	*μ* Aquilæ..... ..	19 26	5	82 58 21,32	0,74	58 25,11	58 19,40	— 3,79	+ 1,92	7,328
907	4	*κ* Aquilæ.....	19 28	5	97 23 45,36	2,47	23 47,34	23 42,45	— 1,98	+ 2,91	7,487
908	5	*ι* Aquilæ.....	19 28	5	91 39 15,29	1,09		39 11,03		+ 4,26	7,502
909	4	*θ* Cygni..... ...	19 32	5	40 10 4,61	2,23	10 0,86	9 58,54	+ 3,75	+ 6,07	7,821
910	4	*α* Sagittæ.....	19 32	5	72 22 7,39	3,56	22 8,54	22 1,87	— 1,15	+ 5,52	7,871
911	4	*φ* Cygni..... ...	19 33	4	60 13 55,78	3,07	13 52,09	13 47,23	+ 3,69	+ 8,55	7,885
912	5	*β* Sagittæ.....	19 33	5	72 54 32,13	2,30		54 30,87		+ 1,26	7,945
913	5	15 Cygni..... ..	19 38	5	53 2 55,57	5,93		2 51,84		+ 3,73	8,323
914	3	*γ* Aquilæ.....	19 38	37	79 47 36,50	5,38	47 33,40	47 30,64	+ 3,10	+ 5,86	8,326
915	4	*δ*¹ Sagittæ.....	19 40	5	71 52 36,65	1,67	52 38,55	52 35,53	— 1,90	+ 1,12	8,455
916	5	*χ* Cygni..... ..	19 40	5	56 39 39.59	2,55		39 37,14		+ 2,45	8,468
917	5	*ζ* Sagittæ.....	19 41	4	71 16 32,59	1,30		16 28,12		+ 4,47	8,583

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			h. *m.*		° ′ ″	*s.*	*m.* *s.*	*m.* *s.*	*s.*	*s.*	*s.*
918	1,2	α Aquilæ.....	19 42	70	81 34 16,88	5,99	34 19,35	34 14,14	— 2,47	+ 2,74	— 8,667
919	4	η Aquilæ.....	19 44	5	89 25 19,50	2,02	25 18,90	25 14,01	+ 0,60	+ 5,49	8,771
920	5	ξ Aquilæ.....	19 46	3	81 58 11,99	1,70		58 4,64		+ 7,35	8,943
921	5	*b* Sagittarii...	19 47	5	117 36 34,06	1,22	36 35,50	36 30,39	— 1,44	+ 3,67	8,982
922	3,4	β Aquilæ.....	19 47	26	84 0 31,34	4,52	0 33,40	0 29,97	— 2,06	+ 1,37	8,478
923	4,5	γ Sagittæ.....	19 51	5	70 57 40,89	0,74	57 40,84	57 30,08	+ 0,05	+ 10,81	9,347
924	5	*f* Vulpeculæ...	19 52	4	67 21 17,35	2,52		21 10,05		+ 7,30	9,400
925	4,5	*c* Sagittarii...	19 52	5	118 10 17,26	2,42	10 18,20	10 13,29	— 0,94	+ 3,97	9,424
926	5	L[1] Sagittarii...	19 54	5	122 30 22,39	1,53		31 19,75		+ 2,64	9,527
927	5	*g* Vulpeculæ...	19 54	4	62 42 29,09	2,35		42 26,54		+ 2,55	9,571
928	5	ρ Draconis.....	20 2	5	22 36 26,05	1,38	36 28,58	36 28,71	— 2,53	— 2,66	10,173
929	3,4	θ Aquilæ.....	20 3	6	91 18 59,48	1,71	18 58,33	18 56,05	+ 1,15	+ 3,43	10,212
930	5	66 Draconis...	20 3	4	28 29 33,55	0,46		29 39,40		— 5,85	10,234
931	5	*b*[2] Cygni.....	20 3	4	53 39 8,93	1,93		39 8,44		+ 0,49	10,256
932	4	α[1] Capricorni...	20 8	5	103 1 23,50	0,46	1 26,46	1 20,77	— 2,96	+ 2,73	10,637
933	4	*o*[2] Cygni.....	20 8	5	43 46 1,42	1,96	46 3,94	45 59,12	— 2,52	+ 2,30	10,641
934	3	α[2] Capricorni..	20 9	23	103 3 38,41	5,90	3 43,66	3 38,76	— 5,25	— 0,35	10,667
935	5	*o* Vulpeculæ...	20 10	5	65 50 37,90	2,27		50 36,54		+ 1,36	10,733
936	7	β[1] Capricorni..	20 11	5	105 18 34,71	2,17		18 29,65		+ 5,06	10,858
937	2	α Pavonis.....	20 12	5	147 16 0,86	2,07		15 57,73		+ 3,13	10,927
938	4,5	κ Cephei.....	20 14	5	12 48 1,59	3,64	48 4,60	48 8,21	— 3,01	— 6,62	11,092
939	3	γ Cygni.....	20 16	5	50 16 51,90	5,99	16 48,95	16 46,64	+ 2,95	+ 5,26	11,216
940	5	*h* Cygni.....	20 17	5	58 21 0,41	2,26		21 1,30		— 0,89	11,285
941	5	π Capricorni...	20 18	5	118 45 30,56	2,14		45 28,13		+ 2,43	11,322
942	5	ρ Capricorni...	20 19	4	108 21 53,84	3,67	21 57,72	21 52,87	— 3,88	+ 0,97	11,435
943	5	G Aquilæ.....	20 21	7	93 26 26,49	4,76		26 24,29		+ 2,20	11,550
944	4,5	*i* Cygni.....	20 22	6	60 11 30,59	1,87	11 26,98	11 23,30	+ 3,61	+ 7,29	11,671
945	5	ω[2] Cygni.....	20 25	5	41 36 47,34	1,17		36 46,70		+ 0,64	11,836
946	4	ε Delphini.....	20 25	5	79 15 56,74	2,08	15 57,29	15 50,73	— 0,55	+ 6,01	11,857
947	5	θ Cephei.....	20 27	5	27 34 16,94	1,60		34 22,82		— 5,88	11,971
948	5	ζ Delphini.....	20 27	5	75 54 13,40	2,05		54 4,13		+ 9,27	12,017
949	3	β Pavonis.....	20 30	5	156 47 57,89	6,70		48 4,05		— 6,16	12,169
950	4,5	θ Delphini.....	20 31	4	77 16 20,92	2,66	16 22,54	16 18,56	— 1,62	+ 2,36	12,250
951	3,4	α Delphini.....	20 32	5	74 40 48,00	2,84	40 44,79	40 38,26	+ 3,21	+ 9,74	12,322
952	5	δ Delphini.....	20 36	6	75 31 37,70	2,26		31 30,57		+ 7,13	12,581
953	1	α Cygni.....	20 36	70	45 19 14,34	6,46	19 12,76	19 9,66	+ 1,58	+ 4,68	12,588
954	4,5	ε Aquarii.....	20 38	4	100 6 35,42	0,66	6 32,14	6 23,62	+ 3,28	+ 11,80	12,780
955	4	*k* Aquarii.....	20 39	5	95 38 28,79	2,53	38 28,17	38 21,92	+ 0,62	+ 6,87	12,800
956	4	γ Delphini.....	20 39	4	74 28 46,42	0,97	28 47,08	28 41,26	— 0,66	+ 5,16	12,802
957	3	ε Cygni.....	20 39	5	56 39 29,38	4,50	39 29,05	39 24,22	+ 0,33	+ 5,16	12,838
958	5	λ Cygni.....	20 40	5	54 7 35,95	3,21		7 27,86		+ 8,09	12,935
959	4	β Indi.....	20 41	4	149 4 56,72	1,61		4 48,32		+ 8,40	12,981
960	4,5	μ Aquarii.....	20 43	5	99 36 44,99	2,32		36 34,95		+ 10,04	13,114
961	5	57 Cygni.....	20 47	5	46 14 56,96	2,18		14 56,51		+ 0,45	13,361
962	4,5	*q* Vulpeculæ...	20 47	6	62 34 48,02	4,26	34 51,42	34 45,15	— 3,40	+ 2,87	13,366
963	4	ν Cygni.....	20 51	5	49 28 48,46	2,43	28 48,23	28 42,22	+ 0,23	+ 6,24	13,594

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			h. m.		° ′ ″	s.	m. s.	m. s.	s.	s.	s.
964	5	K Cephei.....	20 51	6	33 45 35,68	3,50		45 35,44		+ 0,24	— 13,652
965	5	76 Draconis....	20 54	4	8 6 3,14	2,57		6 9,64		— 6,50	13,823
966	5	η Capricorni....	20 55	4	110 31 3,18	0,81	31 2,19	30 58,97	+ 0,99	+ 4,21	13,842
967	4	ξ Cygni..... ...	20 59	5	46 44 33,83	1,29	44 34,91	44 33,89	— 1,08	— 0,06	14,094
968	5	ν Aquarii.....	21 0	5	102 3 2,65	1,21	3 4,12	2 57,25	— 1,47	+ 5,40	14,192
969	5	γ Equulei.....	21 2	4	80 32 41,17	1,86		32 38,11		+ 3,06	14,300
970	3	ζ Cygni..... ..	21 6	5	60 27 46,03		27 44,54	27 42,24	+ 1,49	+ 3,79	14,520
971	4,5	α Equulei.....	21 7	6	85 26 50,18	2,55	26 46,35	26 42,65	+ 3,83	+ 7,53	14,618
972	5	4 Piscis Aust...	21 7	4	122 52 20,03	1,18		52 13,47		+ 6,56	14,634
973	5	τ Cygni..... ...	21 8	3	52 40 17,49	0,51		40 13,16		+ 4,33	15,158
974	4,5	σ Cygni..... ..	21 10	5	51 18 35,64	2,62	18 36,88	18 40,19	— 1,24	— 4,55	14,820
975	4,5	υ Cygni..... ...	21 10	5	55 48 32,29	2,27	48 32,30	48 29,52	— 0,01	+ 2,77	14,831
976	3	γ Pavonis.....	21 12	3	156 7 20,43	1,74		7 25,81		— 5,38	14,911
977	5	γ Indi.....	21 14	5	145 23 3,75	4,28		22 49,04		+ 14,71	15,016
978	4	ε Pegasi.....	21 14	5	70 54 52,76	1,98	54 51,23	54 48,44	+ 1,53	+ 4,32	15,024
979	5	6 Cephei..... ..	21 15	5	25 50 34,68	2,35		50 36,58		— 1,90	15,116
980	4	ζ Capricorni....	21 16	6	113 8 14,25	4,60	8 17,07	8 11,84	— 2,82	+ 2,41	15,180
981	3	β Aquarii.....	21 23	5	96 18 36,23	2,46	18 37,22	18 30,62	— 0,99	+ 5,61	15,499
982	5	g Cygni..... ...	21 23	6	44 12 4,36	2,80		12 5,84		— 1,48	15,530
983	3	β Cephei..... ..	21 26	6	20 10 53,13	2,96	10 48,63	10 53,82	+ 4,50	— 0,69	15,708
984	5	ε Capricorni....	21 28	5	110 13 11,78	0,59	13 5,69	13 3,09	+ 6,09	+ 8,69	15,770
985	5	ρ Cygni..... ...	21 28	5	45 9 15,88	4,55	9 7,97	9 9,46	+ 7,91	+ 6,42	15,771
986	5	ξ Aquarii.....	21 29	5	98 36 23,68	2,16	36 28,79	36 22,25	— 5,11	— 1,43	15,831
987	5	T¹ Pegasi.....	21 30	5	84 59 16,30	3,38		59 7,09		+ 9,21	15,902
988	4	γ Capricorni....	21 31	5	107 25 13,99	2,05	25 16,07	25 11,79	— 2,08	+ 2,20	15,936
989	5	41 Capricorni...	21 32	5	114 1 20,61	2,84		1 16,46		+ 4,15	16,024
990	5	κ Capricorni....	21 33	6	109 37 55,95	1,73	37 54,86	37 50,65	+ 1,09	+ 5,30	16,067
991	5	9 Cephei.....	21 33	6	28 40 39,44	3,04		40 42,98		— 3,54	16,077
992	4,5	ι Piscis Aust...	21 35	4	123 47 30,22	0,97		47 27,23		+ 2,99	16,153
993	2,3	ε Pegasi.....	21 36	5	80 53 45,57	0,69	53 45,85	53 41,00	— 0,28	+ 4,57	16,206
994	4,5	π¹ Cygni.....	21 36	5	39 34 46,70	1,68	34 44,47	34 43,84	+ 2,23	+ 2,86	16,218
995	5	μ Cygni.....	21 37	4	62 1 2,78	3,38		1 1,60		+ 1,18	16,242
996	3,4	δ Capricorni....	21 38	5	106 53 24,24	4,14	53 22,32	53 17,78	+ 1,92	+ 6,46	16,299
997	4,5	τ Cephei..... ..	21 39	6	19 27 57,13	3,26	27 57,90	28 1,09	— 0,77	— 3,96	16,386
998	5	π² Cygni.....	21 41	5	41 28 11,42	3,19	28 11,41	28 11,36	+ 0,01	+ 0,06	16,444
999	4,5	σ Cephei..... ..	21 41	5	29 39 27,44	1,96	39 25,86	39 28,29	— 1,58	— 0,85	16,444
1000	5	z Draconis.....	21 41	5	18 27 10,09	2,39		27 15,27		— 5,18	16,465
1001	4	γ Gruis.....	21 44	5	128 9 17,70	1,74		9 14,02		+ 3,68	16,596
1002	5	μ Capricorni....	21 44	5	104 20 35,31	2,47	20 35,14	20 29,22	+ 0,17	+ 6,09	16,617
1003	5	δ Indi.....	21 46	5	145 47 25,89	4,46		47 14,01		+ 11,88	16,727
1004	5	o Aquarii.....	21 55	5	92 58 0,53	1,51	58 4,47	57 59,95	— 3,94	+ 0,58	17,112
1005	3	α Aquarii.....	21 57	33	91 8 12,33	6,30	8 14,74	8 11,46	— 2,41	+ 0,87	17,227
1006	2	α Gruis..... ...	21 57	6	137 46 26,67	3,12		46 22,37		+ 4,30	17,246
1007	5	ξ Cephei..... ..	21 59	5	26 11 37,35	3,93		11 39,40		— 2,05	17,307
1008	4	ε Pegasi.....	22 2	5	65 28 38,49	2,13	28 38,24	28 32,49	+ 0,25	+ 6,00	17,318
1009	4	θ Pegasi.....	22 2	5	84 37 53,48	2,93	37 48,46	37 43,88	+ 5,02	+ 9,60	17,428

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			h. m.		° ′ ″	s.	m. s.	m. s.	s.	s.	s.
1010	5	π^1 Pegasi.....	22 2	5	57 38 50,44	5,96	38 53,36	39 1,87	— 2,92	— 11,43	— 17,432
1011	4	π^2 Pegasi.....	22 2	5	57 38 50,80	3,04	38 53,36	38 49,42	— 2,56	+ 1,38	17,463
1012	4	ζ Cephei.....	22 5	5	32 37 46,15	1,63	37 48,12	37 50,18	— 1,97	— 4,03	17,570
1013	5	μ^1 Gruis.....	22 5	5	132 11 2,95	5,01		10 58,65		+ 4,30	17,586
1014	5	μ^2 Gruis.....	22 6	5	132 27 48,91	3,90		27 46,34		+ 2,57	17,622
1015	5	m Lacertæ.....	22 7	5	51 7 13,77	2,13		7 11,78		+ 1,99	16,838
1016	3	α Toucanæ....	22 7	5	151 5 49,14	3,92		5 40,57		+ 8,57	17,647
1017	4,5	θ Aquarii.....	22 8	5	98 37 12,82	2,81	37 17,18	37 14,62	— 4,36	— 1,80	17,691
1018	5	α Lacertæ.....	22 9	6	53 5 24,44	1,53		5 19,95		+ 4,49	17,719
1019	4,5	ϵ Cephei.....	22 9	5	33 47 46,08	2,86	47 49,43	47 51,34	— 3,35	— 5,26	17,728
1020	5	30 Pegasi.....	22 12	5	85 3 28,12	1,05		3 21,05		+ 7,07	17,854
1021	5	l Aquarii.....	22 12	5	112 24 27,75	0,75		24 25,10		+ 2,65	17,867
1022	4	γ Aquarii.....	22 13	4	92 14 10,74	2,24	14 9,16	14 2,77	+ 1,58	+ 7,97	17,893
1023	5	b Lacertæ.....	22 14	5	44 18 42,94	4,27		18 44,39		— 1,45	17,937
1024	5	δ Toucanæ.....	22 15	4	155 49 20,00	2,61		49 4,20		+ 15,80	17,981
1025	5	π Aquarii.....	22 17	6	89 28 39,92	4,25	28 39,12	28 35,21	+ 0,80	+ 4,71	18,037
1026	4	c Lacertæ.....	22 17	5	38 36 53,51	2,75	36 55,58	36 56,69	— 2,07	— 3,18	18,048
1027	5	d Lacertæ.....	22 18	5	41 22 39,65	1,55		22 42,69		— 3,04	18,076
1028	4	δ^1 Gruis.....	22 19	4	134 21 18,92	0,75		21 18,84		+ 0,08	18,130
1029	5	δ^2 Gruis.....	22 19	3	134 36 40,41	2,79		36 32,87		+ 7,54	18,149
1030	4	ζ Aquarii.....	22 21	5	90 52 55,97	1,95	52 56,84	52 53,04	— 0,87	+ 2,93	18,167
1031	5	σ Aquarii.....	22 22	5	101 32 21,93	1,93	32 24,10	32 13,45	— 2,17	+ 8,48	18,225
1032	4	β Piscis Aust...	22 22	5	123 12 33,13	4,69	12 30,90	12 32,41	+ 2,23	+ 0,72	18,232
1033	4,5	δ Cephei.....	22 23	5	32 26 50,34	1,99	26 49,62	26 52,69	+ 0,72	— 2,35	18,269
1034	4	g Lacertæ.....	22 24	5	40 35 4,78	2,88	35 3,80	35 3,64	+ 0,98	+ 1,14	18,320
1035	5	υ Aquarii.....	22 25	5	111 34 13,55	4,59	34 3,44	34 10,65	+10,11	+ 2,90	18,359
1036	4	η Aquarii.....	22 27	5	90 59 10,84	3,48	59 10,34	59 2,42	+ 0,50	+ 8,42	18,402
1037	4	18 Piscis Aust...	22 31	5	117 55 15,39	3,52	55 18,95	55 15,52	— 3,56	— 0,13	18,558
1038	5	31 Cephei.....	22 32	5	17 13 57,04	2,83		13 57,06		— 0,02	18,569
1039	3	β Gruis.....	22 32	5	137 45 53,14	2,19		45 46,92		+ 6,22	18,599
1040	5	30 Cephei.....	22 33	5	27 17 31,88	2,55		17 36,14		— 4,26	18,604
1041	3	ζ Pegasi.....	22 33	5	80 3 0,03	1,81	2 53,63	2 48,47	+ 6,40	+ 11,56	18,615
1042	5	o Pegasi.....	22 34	5	61 34 20,14	1,49		34 16,93		+ 3,21	18,641
1043	3	η Pegasi.....	22 35	3	60 39 38,16	3,14	39 37,64	39 34,08	+ 0,52	+ 4,08	18,681
1044	5	ξ Pegasi.....	22 38	5	78 41 26,85	1,63		41 21,57		+ 5,28	18,779
1045	4	ϵ Gruis.....	22 38	5	142 12 11,13	3,39		12 10,60		+ 0,53	18,780
1046	4,5	λ Pegasi.....	22 38	3	67 19 15,75	0,99	19 17,48	19 8,62	— 1,73	+ 7,13	18,784
1047	4	μ Pegasi.....	22 42	5	66 17 18,14	1,55	17 19,37	17 18,68	— 1,23	— 0,54	18,887
1048	5	22 Piscis Aust..	22 43	3	123 46 6,00	2,37		46 2,16		+ 3,84	18,924
1049	4	ι Cephei.....	22 44	5	24 41 15,13	1,74	41 12,99	41 14,77	+ 2,14	+ 0,36	18,940
1050	4	λ Aquarii.....	22 44	5	98 28 32,50	2,32	28 36,38	28 33,41	— 3,88	— 0,91	18,943
1051	5,6	σ Pegasi.....	22 44	3	81 3 40,84	1,73		3 36,46		+ 4,38	18,944
1052	5	e Cephei.....	22 44	4	29 12 0,53	3,29		12 6,86		— 6,33	18,971
1053	3	δ Aquarii.....	22 46	7	106 43 2,17	5,95	43 1,12	42 56,39	+ 1,05	+ 5,78	18,996
1054	1	α Piscis Aust...	22 48	48	120 30 57,25	6,07	30 55,95	30 54,81	+ 1,30	+ 2,44	19,068
1055	5	ζ Gruis.....	22 51	5	143 39 24,67	1,01		39 26,08		— 1,41	19,136

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			h. *m.*		° ′ ″	*s.*	*m.* *s.*	*m.* *s.*	*s.*	*s.*	*s.*
1056	6	x^2 Piscium	22 52	4	90 43 17,36	3,24		43 6,79		+ 10,57	— 19,165
1057	4	o Andromedæ..	22 54	5	48 34 47,38	1,78	34 49,83	34 50,75	— 2,45	— 3,37	19,220
1058	5	β Piscium.... .	22 55	5	87 5 18,33	2,47	5 17,62	5 11,66	+ 0,71	+ 6,67	19,247
1059	2	β Pegasi.....	22 56	5	62 49 54,79	1,15	49 56,72	49 51,64	+ 1,93	+ 3,15	19,255
1060	2	α Pegasi.....	22 56	37	75 42 9,41	5,12	42 7,63	42 4,07	+ 1,78	+ 5,34	19,273
1061	5	θ Gruis..... .	22 57	4	134 25 50,09	1,54		25 47,77		+ 2,32	19,297
1062	5	l Pegasi.....	22 58	5	81 30 6,82	2,83	30 7,24	29 59,37	— 0,42	+ 7,45	19,324
1063	4,5	c^2 Aquarii.....	23 0	5	112 5 15,24	2,09	5 16,25	5 9,64	— 1,01	+ 5,60	19,368
1064	5	ι Gruis.....	23 0	5	136 9 34,51	3,81		9 36,41		— 1,90	19,374
1065	5	c^3 Aquarii.....	23 1	4	113 22 15,53	3,05		22 13,45		+ 2,08	19,378
1066	5	π Cephei..... ..	23 3	5	15 31 33,10	5,94		31 34,77		— 1,67	19,415
1067	5,6	p Pegasi.....	23 3	4	82 11 46,44	3,99		11 40,99		+ 5,45	19,429
1068	5	u Andromedæ..	23 5	4	41 30 55,71	3,83		30 57,58		— 1,87	19,464
1069	5	ϕ Aquarii.....	23 6	5	96 57 30,31	2,31	57 31,15	57 27,87	— 0,84	+ 2,44	19,479
1070	4	γ Toucanæ	23 7	5	149 9 37,87	5,82		9 43,42		— 5,55	19,518
1071	4,5	γ Piscium.....	23 8	5	87 38 21,39	2,17	38 22,71	38 21,16	— 1,32	+ 0,23	19,536
1072	5	ψ^2 Aquarii	23 9	4	100 6 16,55	3,97	6 14,24	6 8,01	+ 2,31	+ 8,54	19,550
1073	5	γ App. Sculp...	23 10	4	123 27 2,25	0,89		27 2,86		— 0,61	19,560
1074	5	8 Andromedæ..	23 10	3	41 54 25,00	2,19		54 27,31		— 2,31	19,565
1075	6	b Piscium.....	23 12	3	85 32 24,16	2,79		32 22,36		+ 1,80	19,599
1076	5	τ Pegasi.....	23 12	5	67 10 59,12	1,82		10 56,04		+ 3,08	19,609
1077	5	b^1 Aquarii.....	23 14	5	111 1 18,79	4,80		1 17,52		+ 1,27	19,641
1078	6	66 Pegasi.....	23 15	3	78 36 36,97	1,92		36 38,22		— 1,25	19,649
1079	5	υ Pegasi.....	23 17	5	67 31 27,44	5,18		31 28,62		— 1,18	19,689
1080	5	b^2 Aquarii.....	23 17	5	111 34 0,21	1,13		34 2,18		— 1,97	19,692
1081	5	d Cassiopeæ....	23 17	5	28 38 34,96	2,35	38 39,85	38 41,87	— 4,89	— 6,91	19,696
1082	5	θ Piscium.....	23 19	5	84 32 38,16	3,47		32 55,00		— 16,84	19,728
1083	5	s Cephei..... ..	23 20	5	20 34 11,72	2,16		34 10,28		+ 1,44	19,740
1084	5	q Pegasi.....	23 21	5	78 10 13,52	3,43		10 8,81		+ 4,71	19,746
1085	6,7	ϖ^1 Piscium	23 21	3	92 43 11,73	0,85		43 10,01		+ 1,72	19,749
1086	5	* Cassiopeæ....	23 22	5	32 22 54,31	4,74		22 56,56		— 2,25	19,771
1087	5	b^4 Aquarii.....	23 24	5	111 50 50,87	3,38		50 47,98		+ 2,89	19,801
1088	5	y Pegasi.....	23 25	6	68 25 54,83	2,73		25 47,89		+ 6,94	19,809
1089	6,7	ϖ^4 Piscium	23 25	3	92 10 48,07	0,65		10 42,52		+ 5,55	19,815
1090	5	ι Phœnicis.. ..	23 26	5	133 32 50,41	4,22		32 47,82		+ 2,59	19,821
1091	4,5	λ Andromedæ,.	23 29	6	44 27 26,79	4,08	27 23,66	27 20,00	+ 3,13	+ 6,79	19,863
1092	5	θ Phœnicis	23 30	5	137 34 27,06	2,66		34 27,91		— 0,85	19,875
1093	5	ω^1 Aquarii.....	23 31	5	105 9 24,96	6,21		9 14,32		+ 10,64	19,882
1094	4,5	ι Piscium.	23 31	5	85 17 23,36	2,88	17 20,38	17 19,03	+ 2,98	+ 4,33	19,335
1095	5	κ Andromedæ..	23 32	5	46 36 2,17	3,84		36 4,62		— 2,45	19,894
1096	3	γ Cephæ..... ..	23 32	4	13 18 35,74	3,07	18 37,25	18 40,10	— 1,51	— 4,36	19,898
1097	5	A 1 Aquarii	23 33	4	108 57 36,40	4,96		57 30,99		+ 5,41	19,901
1098	5	λ Piscium.....	23 33	3	89 8 56,64	1,11	8 58,44	8 57,82	— 1,80	— 1,18	19,907
1099	5	A 3 Aquarii	23 35	5	109 12 51,54	2,10		12 46,77		+ 4,77	19,927
1100	5	i Pegasi.....	23 35	5	61 34 23,04	2,76		34 25,95		— 2,91	19,928
1101	7	* Piscium.....	23 36	5	83 44 39,38	2,62		44 41,92		— 2,54	19,934

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			h. m.		° ′ ″	*s.*	*m. s.*	*m. s.*	*s.*	*s.*	*s.*
1102	5	ψ Andromedæ..	23 38	6	44 31 5,76	2,51		31 2,96		+ 2,80	— 19,947
1103	5	τ Cassiopeæ....	23 39	5	32 17 20,48	3,08		17 21,58		— 1,10	19,957
1104	5	* Draconis.....	23 40	5	23 7 54,03	2,43		7 57,95		— 3,92	19,965
1105	5	δ App. Sculp...	23 40	6	119 3 49,37	5,90		3 48,17		+ 1,20	19,967
1106	6	21 Piscium.....	23 41	5	89 51 46,31	4,82		51 41,82		+ 4,49	19,972
1107	6	22 Piscium.....	23 43	3	88 0 28,97	1,76		0 30,54		— 1,57	19,989
1108	5,6	ψ Pegasi.....	23 49	3	65 47 50,78	1,48		47 47,34		+ 3,44	20,020
1109	5	p Piscium.....	23 50	5	94 29 36,81	2,81	29 36,55	29 32,33	+ 0,26	+ 4,48	20,023
1110	4,5	ω Piscium.	23 51	5	84 4 17,57	3,84	4 19,82	4 18,79	— 2,25	— 1,22	20,026
1111	5	* Cassiopeæ....	23 53	5	29 43 7,32	2,16		43 5,52		+ 1,80	20,033
1112	5	q Piscium.....	23 53	5	93 58 3,43	5,80	58 5,89	58 0,73	— 2,45	+ 2,70	20,034
1113	4,5	r Piscium.....	23 53	5	96 57 11,40	4,35	57 12,03	57 8,85	— 0,63	+ 2,55	20,034
1114	6	85 Pegasi.....	23 53	4	63 48 41,13	2,31		48 53,56		— 12,43	18,884
1115	4	g Ceti.....	23 53	5	108 16 35,60	2,17	16 35,52	16 30,01	+ 0,08	+ 5,59	20,038
1116	5	s Piscium.....	23 57	5	96 39 8,38	2,13	39 11,70	39 10,09	— 3,32	— 1,71	20,040
1117	7	5 Ceti.....	23 59	5	93 23 15,20	4,83		23 12,19		+ 3,01	20,043
1118	1	α Andromedæ..	23 59	50	61 50 33,16	6,41	50 34,37	50 33,31	— 1,21	— 0,15	20,043

In constructing the Madras Catalogue (as I have before stated) the tables of refraction employed are those by Atkinson, published in the 2d Volume of the Astronomical Society's Memoirs; whereas the Greenwich Catalogue with which I have compared the Madras results, was computed from Bradley's table of refractions. Now to render the two Catalogues strictly comparable, it is necessary that each should be reduced by the same table; I have consequently applied to the Greenwich Catalogue the corrections which have already been employed at Pages 61 and 62.

Continuation of table at Page 62.

N.P.D.				
93	Add to	Greenwich	Catalogue.....	+ 1,57
98	do.	do.	do.	+ 1,76
103	do.	do.	do.	+ 1,96
108	do.	do.	do.	+ 2,30
113	do.	do.	do.	+ 2,48
116	do.	do.	do.	+ 2,33
118	do.	do.	do.	+ 2,14
119	do.	do.	do.	+ 1,78
120	do.	do.	do.	+ 1,19
121	do.	do.	do.	+ 0,13
122	do.	do.	do.	— 1,45
123	do.	do.	do.	— 4,06

On examining the column "difference from Greenwich" out of 489 comparisons there are

197	in which the difference is	less than	1″,5			
122	do.	greater than	1″,5	and less than	2″,5	
115	do.	do.	2″,5	do.	4″,0	

and 55 cases in which the difference exceeds four seconds I forbear at present entering into a detailed investigation of these discordances and will only remark, that in about 40 cases out of the 55 the Madras results are confirmed by further observation in the present year (1832.)

The column "difference from A. S. C." furnishes 1114 comparisons between the Madras and Astronomical Society's Catalogue, of these there are 693 which are less than 4″; 315 between 4″ and 8″, and 105 which exceed 8″; among this last class 53 of the larger numbers are marked in the Astronomical Society's Catalogue with an Asterisk, signifying that the place of the Star has been brought forward from the observations of La Caille, and is less to be depended upon than the other portions of the Catalogue; by way of concluding this work I may remark that two of the larger errors, viz. ζ Toucanæ and λ¹ Phœnicis are confirmed by further observation in 1832, and with the observations of this year when completed, the remaining discordancies will I imagine all be confirmed.

Errata in Result of Observations for 1831.

Page	32	Correction for Azimuth	line	3	for	13,310	read 13,267
—	—	—— for Collimation	—	3	—	0,411	—— 4,10
—	—	Transit over Meridian	—	3	—	11,41	—— 7,68
—	—	Correction for Level	—	37	—	,175	—— 1,75
—	—	—— for Azimuth	—	37	—	2,831	—— 28,31
—	—	—— for Collimation	—	37	—	,881	—— 8,81
—	—	Transit over Meridian	—	37	—	59,75	—— 50,25
—	—	Name	—	52	—	χ	—— κ
	43	Correction for Level	—	21	—	,326	—— ,295
—	—	—— for Azimuth	—	21	—	— ,585	—— + ,194
—	—	—— for Collimation	—	21	—	,664	—— ,627
—	—	Transit over Meridian	—	21	—	2,84	—— 3,62
—	—	Name	—	21	—	υ Aurigæ	—— A Orionis.
	45	Name	—	29	—	χ Aurigæ	—— A Orionis.
—	—	App. A. R.	—	29	—	2,84	—— 3,62
—	—	Aberration, &c.	—	29	—	4,48	—— 3,70
—	—	Mean A. R.	—	29	—	58,36	—— 59,92
—	—	Mean Place	—	29	—	43,08	—— 45,54
	52	Clock Rate by Stars	—	17	—	—	—— +
	72	Observed N. P. D.	—	28	—	19′	—— 18′
	81	Mean Time October 16			—	2″,8	—— 0″,3
—	—	A. R. ——			—	24,52	—— 21,94
	84	Mean Time ——			—	40,9	—— 38,3
—	—	A. R. ——			—	53′ 1″,00	—— 52′ 58″,43
	102	Line 36			—	ν^2	—— υ^2
	105	— 17 Difference from Greenwich			—	+ 0,03	—— — 0,07
	128	— 17 Observed N. P. D.			—	47,01	—— 50,17
—	—	17 Difference			—	+ 1,28	—— +4,44
	132	— 11 Observed N. P. D.			—	0,47	—— 0,87
	133	— 7 —— ——			—	58,81	—— 58,31

Plate I.